CAPTAIN WILSON,

Barrack Master,

LONDON, C. W.

J. Wilson

Barrack Master

London C.W

1835

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MISCELLANIES.

INKS.

Method of making Black Writing Ink.

In six quarts (beer measure) of water, boil four ounces of Campeachy logwood, chipped very thin across the grain. The boiling may be continued near an hour, adding from time to time, a little boiling water, to compensate the waste by evaporation. Strain the liquor while hot, suffer it to cool, and make up the quantity equal to five quarts by the further addition of cold water. To this cold decoction, put

1 lb avoirdupoise of blue galls, coarsely bruised, or
20 oz. of the best galls in sorts,
4 oz. of sulphate of iron calcined to whiteness,
half oz. of acetite of copper, previously mixed with
the decoction till it forms a smooth paste,
3 oz. of coarse brown sugar, and
6 oz. of gum Senegal or Arabic. X

These several ingredients may be introduced one after the other, contrary to the advice of some, who recommend the gum &c. to be added when the ink is nearly made. The composition produces the ink usually called Japan Ink, from the high gloss which it exhibits when written with, and a small phial of which is sold for sixpence.

X add 5 drops of Creosot to 1 pint of Ink to prevent it moulding

The above ink, though possessing the full proportion of every ingredient known to contribute to the perfection of ink, will not cost more, to those who prepare it for themselves, than the commonest ink which can be bought by retail. The recipe was given to the public by Desormeaux. It answers for copying letters by transferring from them an impression to a damp sheet of thin unsized paper, passing through a small rolling press.

When gum is very dear, or when no very extraordinary gloss is required, four ounces will be found sufficient, with one ounce and a half of sugar. The sugar is to impart a greater degree of fluidity, and consequently to make the ink flow more readily from the pen, than it otherwise would, when the quantity of gum proper to give a high gloss is used.

By using only twelve ounces of galls, to four ounces of sulphate of iron, uncalcined, (omitting the logwood, the acetite of copper, and the sugar,) and using only three ounces of gum, a good and cheap common ink will be obtained.

It appears of little consequence whether rain, river, or spring water is used; but it will always be safest to prefer one of the two former, where it can be obtained.

Lamp-black has been added to ink, to prevent its colour from being destroyed by the action of the oxymuriatic acid. It should be burnt in a closed crucible, to render it less oily. It causes the ink to write much less freely, although it may be useful for particular occasions.

Red Ink for Writing.

Boil over a slow fire four ounces of Brazil-wood in small raspings or chips, in a quart of water, till a third part of the water is evaporated. Add during the boiling two drams of alum in powder. When the ink is cold, strain it through fine flannel. Vinegar or stale urine is often used instead of water.

Blue Ink.

Take sulphate of indigo, which may be had of the dyers, and dilute it with water till it produces the colour desired. It is with this sulphate, very largely diluted, that the faint blue lines of ledgers and other account books are ruled. If the ink were used strong, it would be necessary to add chalk to it, to neutralize the acid.

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Indelible Ink for marking Linen, &c

Dissolve in nitric acid any quantity of silver. This solution, if the silver has been alloyed with copper, will be of a sapphire blue.

In order to separate the copper from the silver, add to the solution twelve times its weight of distilled water, or, for want of it, rain-water, and suspend in it a thin plate of copper. In proportion as this plate dissolves, the silver will precipitate itself perfectly pure, in the form of a white powder. When no more of this powder will precipitate itself, the liquor should be decanted. The powder is then to be washed in a great quantity of water, until the water thrown upon it is no longer of a blue cast, but remains perfectly limpid. The powder thus obtained is silver in its purest state.

If this powder weighs one ounce, dissolve as much gum Senegal, and two drams of white glue (glue prepared from white leather or parchment will answer) in two ounces of distilled water. Mix this solution with three drams of lamp-black well calcined in a close crucible.

To manufacture this mixture properly, it should be triturated in a glass mortar.

This operation being finished, the solution of silver, diluted in eight times its weight of distilled water, is poured upon the above mixture: the whole is then well stirred with a spatula, and the ink is made.

This ink is fixed upon the cloth by means of a mordant, which is thus prepared: Dissolve two ounces of white glue, and as much isinglass, in six ounces of alcohol, and as much distilled water. This solution will be made in two days. The *balneum mariæ* is made use of for the purpose; and care must be taken to stir the two kinds of glue from time to time.

After the whole is dissolved, it must be filtered through flannel, in order to keep back all its mucilaginous particles. The liquid thus filtered, is preserved for use in a bottle well corked.

The part of the linen intended to be marked, must be wetted with this mordant, which must be allowed to become perfectly dry on it. The part must then be rubbed smooth with an instrument called a polisher, which may be a piece of glass shaped like a pestle, or even the bottom edge of a common phial. The writing is then to be made with the ink, using a common hard-nibbed pen. Soap, or any other material used in washing, will take out the lamp-black, which is merely to give a stronger

colour to the fluid when it is written with; but it never has any effect upon the ink, or nitrate of silver, which itself forms a stronk black, after it has been a short time written with, and exposed to the light.

Sympathetic Inks.

Sympathetic, or secret inks, are those which are not perceived till the paper upon which they are used has undergone some preparation to render the characters visible. A great number of compositions of this kind are known.

If a weak tincture of galls be written with, the characters will be invisible till wetted with a weak solution of sulphate of iron: or *vice versa*, a weak solution of sulphate of iron will not appear till moistened with the solution of galls.

If a solution of alum be employed, the characters will be invisible till the paper is immersed in water, when they will be legible.

A solution of acetate of lead in water will not appear till moistened with a solution of sulphuret of potass, which renders it brown.

The marks of diluted sulphuric acid are not visible till the paper is heated, when they become black.

A weak solution of cobalt in nitro-muriatic acid will not appear when it is written with, but by warming the paper it assumes a lively green colour. This colour possesses the singular property of disappearing, or nearly so, when the paper becomes cold, but of becoming again distinctly visible when brought to the fire; and this effect will take place for an indefinite number of times. It has been sometimes used for drawings, which have all the appearance of representing barren and desolate scenes, but when they are brought to the fire, a lively and beautiful verdure charms the eye. It might therefore be used for fire-screens with a beautiful effect.

To make a blue sympathetic ink, dissolve cobalt in nitric acid, and precipitate it by potash: dissolve this precipitated oxide of cobalt in acetic acid, and add to the solution one-eighth of common salt. This ink appears and disappears under the same treatment as the last-mentioned.

As it is disagreeable to write with a colourless fluid, any of these inks may be mixed with cork, first burnt and finely powdered; when the writing is performed, the blackness may be removed by the use of Indian rubber, unless the paper has been scratched.

CEMENTS AND LUTES.

Cements for stopping the Fissures in Iron Vessels.

Take six parts of yellow potter's clay, one part of the filings of iron, and a quantity of linseed oil sufficient to form it into a paste of the consistence of putty. The paste should be beaten with a hammer to mix the ingredients. This composition is easily forced into the fissures of iron vessels, which when repaired with it, have been found to answer as well as if they had been renewed.—The clay should be freed from water, by drying it in the sun, or a slow oven.

Another cement to interpose between surfaces of iron, for example the flanches of the pipes and other parts of steam-engines, is made of two ounces of muriate of ammonia, one ounce of flowers of sulphur, and sixteen ounces of cast-iron filings or turnings. Mix them well in a mortar, and keep the powder dry. When the cement is wanted, take one part of this mixture, and twenty parts of clean iron filings or borings; grind them together in a mortar, mix them with water to a proper consistence, and apply them between the joints.

Blood Cement.

A cheap and strong cement may be formed by mixing bullock's blood with quick-lime. It soon hardens, and therefore should be used immediately after it is made. It is used by coppersmiths, to lay over the rivets and edges of the sheets of copper in large boilers, to prevent leakage, but may be used for a great variety of other purposes.

A cement having nearly the same properties as the above, is made by mixing drying linseed oil with quicklime.

Cements for Stone.

Plaster of Paris, used alone, is the cement which stone and marble masons place between the different pieces or joints of mantle-pieces, &c. but a better cement for jointing broken pieces of spars and stones, is formed by adding seven or eight parts of rosin to one of wax, and adding only a small quantity of plaster of Paris to strengthen it. The ingredients should be melted and thoroughly mixed together. In using this composition, the pieces of stone to be joined, should be made suf

ficiently warm to melt it, and should be pressed closely together, agreeably to the general rule, to leave as small a body of cement in the juncture as possible.

Gum mastic alone, used in the same manner as the last, namely, by heating the pieces till they melt it, forms a good cement, often used for agates and precious stones.

Linseed oil and chalk, form the putty so much used by glaziers. The cement is stronger when white lead is used with the oil instead of chalk; such a composition is frequently employed for the joints of stone-work.

A Solder or Cement which gives to broken Vessels of Glass or China their original strength.

The principle upon which this is accomplished, consists in using a composition which fuses into glass, at a much less heat than the pieces to be united.

Take two parts of white lead, one part of flint-glass, (of which table-glasses are made,) and one part of borax. Reduce these ingredients to a fine powder, and mix them well. This powder must be mixed with water, and laid upon the edges of the broken pieces, with a camel hair pencil. The parts are then to be joined properly together, and kept in that state, by means of wire. They are then placed in an oven, or in an iron pot over a charcoal fire gradually raised, till the composition melts into glass. The parts will be as firmly united as when new, and when struck, will ring or sound in the same manner.

The top of the pot, during the firing, should be closed with a tin-plate or iron cover, and the edges secured with clay; except a small hole through which the operator suspends a piece of wire, to which is attached a bit of china ware, with a little of the cement or flux upon it. By the examination of this piece of china, it is known when the operation of firing is finished.

Cements for China, Glass, &c. without heat.

Glass and china may be cemented by means of white paint, which is composed of linseed oil and white lead. This cement is merely a thin kind of putty. It holds with considerable firmness, and resists water; but is rather long in drying.

A strong cement, insoluble in water, may be made from cheese. The cheese should be that of skimmed milk, cut into slices, throwing away the rind, and boiled till it becomes a strong tenacious mass This water being washed off, it is

to be washed in cold water, and then kneaded in warm. This process is to be repeated several times. The glue is then to be put warm on a levigating stone, and kneaded with quicklime. This cement may be used cold, but it is better to warm it; and it will join marble, stone, or earthenware, as well as china or glass, so that the joining will be very strong, and scarcely perceptible. When perfectly dry, it completely resists the effects of water, whether hot or cold.

Cement or Glue to resist Water.

A solution of shell-lac in alcohol, added to a solution of isinglass in proof spirit, forms a cement that resists water, and may be used as a glue. On cements of this nature, see page 121, vol. I.

Fire-proof and Water-proof Cement.

To half a pint of milk, put an equal quantity of vinegar, in order to curdle it; then separate the curd from the whey, and mix the whey with the whites of four or five eggs, beating the whole well together. When it is well mixed, add a little quicklime through a sieve, until it has acquired the consistence of a thick paste. With this cement, broken vessels and cracks of all kinds may be mended. It dries quickly, and resists the action of water, as well as of a considerable degree of heat.

Rice Glue.

This elegant cement is made by mixing rice flour intimately with cold water, and then gently boiling the mixture. It is beautifully white, and when dry is semi-transparent. Papers pasted together with this cement will sooner separate in their own substance than at the joining. It is in every respect preferable to flour-paste, for the purposes to which the latter is applied.

This compostion, reduced by the addition of water to the consistence of clay, may be employed for models, busts, &c. which when dry will take a high polish, and prove very durable. It has been said that the Chinese use it for quadrille fish and other articles, which may be mistaken for mother of pearl; but this account has been proved erroneous.

Cements for Turners, &c.

One pound of rosin, and four ounces of pitch, melted together, and while boiling hot, stiffened by the addition of brick-

dust, make a strong cement for cementing pieces of work to chucks. The brick-dust may be added in small quantities, and after mixing it each time, a drop or two of the cement may be taken out, and allowed to cool, to prove whether it is hard enough. It may be poured into water, and made up in rolls to be kept for use.

Four ounces of rosin, a quarter of an ounce of wax, and four ounces of whiting or any kind of ochre, form a finer cement of the same kind as the above.

Pitch, stiffened merely by the addition of wood ashes, is often used by glass-grinders.

Any of these cements, when required to be particularly tough, and to cement any thing which has to sustain the blow of a hammer, as articles that are cut with a punch, may be mixed up with a little tow. They may also at any time be made softer by melting them with more or less tallow.

Potato Size.

Size is a much diluted cement, and is either prepared from common glue, or isinglass, or by boiling the shreds of parchment or white leather, or consists of flour paste made very thin; but these compositions, particularly those of an animal nature, quickly putrefy, and produce a disagreeable smell, from which potato size is free. The potatoes must be grated into water, and after changing the water once or twice, there will be found at the bottom of the vessel a white fecula or starch. This starch is made into size, by boiling it with a sufficient quantity of water. Mingled with whitewash, an excellent and durable white is formed, which will not rub off.

Cement withstanding Sulphuric Acid.

Chaptal had occasion for a cement, in his experiments to make alum, from its constituent principles, which would not grow soft or crack with a heat from 122 to 144 of Fahrenheit, which should withstand the sulphuric acid, and which should be so smooth that no cracks or crevices should appear on its surface. He at length, after a series of experiments that continued from 12 to 15 months, found that equal parts of rosin, turpentine, and wax, answered best. These three substances are melted together in a pot; and when all the volatile oil which causes the mixture to rise is dissipated, it is to be applied boiling hot with a brush.

The number of uses to which this cement may be applied is very great. It may be employed to line the casks used on

board a ship; the water or victuals kept in them would not be so subject to grow putrid, even the ships themselves might be coated with it. This cement is preferable to tar in many respects; it is not so subject to crack, it is less sticky, more supple, and has a smoother surface. A board six feet long, and 18 inches wide, covered with it, was kept in water for 19 months. It had not imbibed any water, nor was the coating at all damaged If it should be required to render it more consistent, powdered bricks may be used.—*Rep.* vol. 2.

LUTES.

Lutes are compositions which are employed to defend glass and other vessels from the action of fire, or to fill up the vacancies which occur when separate tubes, for the necks of different vessels, are inserted into each other, during the process of distillation. Those lutes which are exposed to the action of the fire, are usually called *fire lutes*.

For a very excellent fire lute, which will enable glass vessels to sustain an incredible degree of heat, take fragments of porcelain, pulverise and sift them well, and add an equal quantity of pure clay, previously softened with as much of a saturated solution of muriate of soda, as is requsite to give the whole a proper consistence. Apply a thin and uniform coat of this composition to the glass vessels, and allow it to dry slowly before they are put into the fire.

Equal parts of coarse sand and refractory clay, mixed with a little hair, form a good fire lute.

Fat earth, beaten up with fresh horse dung, Chaptal recommends as an excellent fire lute, which he generally used, and the adhesion of which was such, that after the retort had cracked, the distillation could be carried on and regularly finished.

Lutes for the joining of such vessels as retorts and receivers, are varied according to the nature of the vapours which will act against them, in order not to employ a more expensive and troublesome composition than the case requires. For resisting watery vapours, slips of wet bladder, or slips of paper or linen, covered with stiff flour paste, may be bound over the juncture.

A closer and neater lute for more penetrating vapours, is composed of whites of eggs made into a smooth paste with quicklime, and applied upon strips of linen. The quicklime should be previously slacked in the air, and reduced to a fine

powder. The cement should be applied the moment it is made; it soon dries, becomes very firm; and is in chemical experiments one of the most useful cements known.

Where saline, acrid vapours are to be resisted, a lute should be composed of boiled linsed oil intimately mixed with clay, which has been previously dried, finely powdered, and sifted. This is called fat lute. It is applied to the junctures, as the undermost layer, and secured in its place by the white of egg lute last mentioned, which is tied on with packthread.

VARNISHES.

To dissolve Copal in Alcohol.

Copal, which is called gum copal, but which is not strictly either a gum or a resin, is the hardest and least changeable of all substances adapted to form varnishes, by their solution in spirit, or essential or fat oils. It therefore forms the most valuable varnishes, though we shall give several recipes where it is not employed, which form cheaper varnishes sufficiently good for many purposes, adding only the general rule, that no varnish must be expected to be harder than the substance from which it is made.

To dissolve copal in alcohol, dissolve half an ounce of camphor in a pint of alcohol; put it into a circulating glass, and add four ounces of copal in small pieces; set it in a sand heat, so regulated that the bubbles may be counted as they rise from the bottom; and continue the same heat till the solution is completed.

The process above described, will dissolve more copal than the menstruum will retain when cold. The most economical method will therefore be, to set the vessel which contains the solution by for a few days, and when it is perfectly settled, pour off the clear varnish, and leave the residuum for a future operation.

The solution of copal thus obtained is very bright: it is an excellent varnish for pictures; and would doubtless be an improvement in japanning, where the stoves used for drying the varnished articles would drive off the camphor, and leave the copal clear and colourless on the work.

To dissolve Copal in Spirits of Turpentine.

Reduce two ounces of copal to small pieces, and put them into a proper vessel. Mix a pint of the best spirits of turpentine with one eighth of spirit of sal ammoniac; shake them well together, put them to the copal, cork the glass, and tie it over with a string or wire, making a small hole through the cork. Set the glass in a sand heat, so regulated as to make the contents boil as quickly as possible, but so gently that the bubbles may be counted as they rise from the bottom. The same heat must be kept up exactly till the solution is complete.

It requires the most accurate attention to succeed in this operation. After the spirits are mixed, they should be put to the copal, and the necessary degree of heat be given as soon as possible, and maintained with the utmost regularity. If the heat abates, or the spirits boil quicker than is directed, the solution will immediately stop, and it will afterwards be in vain to proceed with the same materials; but if properly managed, the spirit of sal ammoniac will be seen gradually to descend from the mixture, and attack the copal, which swells and dissolves, excepting a very small quantity which remains undissolved.

It is of much consequence that the vessel should not be opened till some time after it has been perfectly cold; for if it contain the least warmth when opened, the whole contents will be blown out of the vessel.

Whatever quantity is to be dissolved, should be put into a glass vessel capable of containing at least four times as much, and it should be high in proportion to its breadth.

This varnish is of a rich deep colour, when viewed in the bottle, but seems to give no colour to the pictures upon which it is laid. If it be left in the damp, it remains sacky, as it is called, a long time; but if kept in a warm room, or placed in the sun, it dries as well as any other turpentine-varnish, and when dry it appears to be as durable as any other solution of copal.

Copal may also be dissolved in spirits of turpentine by the assistance of camphor.

Turpentine varnishes dry more slowly than those made with alcohol, and are less hard, but they are not so liable to crack.

To dissolve Copal in fixed Oil.

Melt in a perfectly clean vessel, by a very slow heat, one pound of clear copal; to this add from one to two quarts of drying linseed oil. When these ingredients are thoroughly mixed, remove the vessel from the fire, and keep constantly

stirring it, till nearly cold; then add a pound of spirits of turpentine. Strain the varnish through a piece of close linen, and keep it for use. The older it is, the more drying it becomes.

This varnish is very proper for wood-work, house and coach painting.

Seed-lac Varnish.

Take three ounces of seed-lac, and put it with a pint of spirits of wine into a bottle, of which it will not fill above two-thirds. Shake the mixture well together, and place it in a gentle heat, till the seed-lac appears to be dissolved: the solution will be hastened by shaking the bottle occasionally. After it has stood some time, pour off the clear part, and keep it for use in a well stopped bottle. The seed-lac should be purified before it is used, by washing it in cold water, and it should be in coarse powder, when added to the spirit.

This varnish is next to that of copal in hardness, and has a reddish yellow colour: it is therefore only to be used where a tinge of that kind is not injurious.

Shell-lac Varnish.

Take five ounces of the best shell-lac, reduce it to a gross powder, and put it into a bottle that will hold about three pints or two quarts. Add to it one quart of rectified spirits of wine, and place the bottle in a gentle heat, or a warm close apartment, where it must continue two or three days, but should be frequently well shaken. The lac will then be dissolved, and the solution should be filtered through a flannel bag; and when the portion that will pass through freely is come off, it should be kept for use in well-stopped bottles. The portion which can only be made to pass through the bag by pressure, may be reserved for coarse purposes.

Shell-lac varnish is rather softer than seed-lac varnish, but it is the best of all varnishes for mixing with colours to paint with instead of oil-colours, from its working and spreading better in the pencil.

Varnish for Toys, silvered Clock-faces, and Furniture not exposed to hardship.

Dissolve two ounces of gum-mastic, and eight ounces of gum-sandrach, in a quart of alcohol; then add four ounces of Venice

turpentine. The addition of a little of the whitest part of gum-benjamin will render the varnish less liable to crack.

Amber Varnish

Amber forms a very excellent varnish; its solution may be effected by boiling it in drying linseed oil.

Oil varnishes which have become thick by keeping, are made thinner with spirits of turpentine.

JAPANNING.

Japanning is the art of varnishing in colours, and is frequently combined with painting.

The substances proper for japanning, are, wood and metal, with all others which retain a determinate form, and are capable of sustaining the operation of drying the varnish. Paper and leather, therefore, when wrought into forms in which they remain stretched, stiff, and inflexible, are very common subjects for japanning.

The article to be japanned is first rendered smooth and perfectly clean, it is then brushed over with two or thee coats of seed-lac varnish, prepared as above directed, (p. 792,) except that the coarsest seed-lac will answer the purpose. The varnish thus laid on is called the *priming*. The next operation is to varnish the article again with the best varnish previously mixed with a pigment of the tint desired. This is called the *ground-colour;* if the subject is to exhibit any painting, the objects are painted upon it, in colours mixed up with varnish, and used in the same manner as for oil-painting. The whole is then covered with additional coats of transparent varnish, and all that remains to be done, is to dry and polish it.

Japanning should always be executed in warm apartments, as cold or moisture are alike injurious; and all the articles should be warmed before any varnish is applied to them. One coat of

varnish, also, must be dry before another is laid on. Ovens are employed to hasten the perfect drying of the work.

All the coloured pigments employed in oil or water, answer perfectly well in varnish, combined with which vehicle, many of those which fly in oil, are perfectly unchangeable. The manner in which the colours are mixed with the varnish is extremely simple and easy: they are first reduced, by the usual means of washing and levigation, to the finest state possible; and the varnish being contained in a bottle, they are added to it, till the requisite body of colour is obtained; the mixture being rendered complete by stirring or shaking the bottle. When a single colour is intended, the varnish employed is of no consequence, if it be hard enough for the work, and not possessed of any colour inconsistent with the tint required; but for painting with, shell-lac varnish is the best, and easiest to work: it is therefore employed in all cases where its colour permits, and for the lightest colours, mastic varnish is employed, unless the fineness of the work admits the use of copal dissolved in spirits of wine.

To spare varnish, the priming may be composed of size mixed with whiting, to give it a body, as some substances require much varnish to saturate them; but work primed with size is never durable; it is liable to crack and fly with the least violence, which never happens to work into which the varnish can sink. Varnish cannot sink into metals, and this is the reason that japanned metal, for example a japanned tin-plate tray, is of less value than a paper one. The battering which this piece of furniture sustains in its use, soon separates the japan from it in flakes, or scales; which never happens to the paper, because the japan forms a part of its substance.

It may be observed, that only wood, paper, leather, and similar substances, require priming: metals require none, because they admit no varnish into them; and therefore the ground is applied to them immediately.

The priming and grounds are all laid on with brushes made of bristles: the painting will of course often require camel's-hair pencils.

Of Japan Grounds.

Red.—Vermilion makes a fine scarlet, but its appearance in japanned work is much improved by glazing it with a thin coat of lake, or even rose-pink.

Indian lake, when good, is perfectly soluble in spirits of wine, and produces a fine crimson, but is not often to be obtained.

Japanning.

Yellow.—King's yellow, turbith mineral, and Dutch pink, all form very bright yellows, and the latter is very cheap. Seed-lac varnish assimilates with yellows extremely well; and where they are required very bright, an improvement may be effected by infusing turmeric in the varnish which covers the ground.

Green.—Distilled verdigris laid on a ground of leaf gold, produces the brightest of all greens; other greens may be formed by mixing king's yellow and bright Prussian blue, or turbith mineral and Prussian blue, or Dutch pink and verdigris.

Blue.—Prussian blue, or verditer glazed with Prussian blue or smalt.

White.—White grounds are obtained with greater difficulty than any other. One of the best is prepared by grinding up flake-white, or zinc-white, with one-sixth of its weight of starch, and drying it; it is then tempered, like the other colours, using the mastic varnish for common uses; and that of the best copal for the finest. Particular care should be taken, that the copal for this use be made of the clearest and whitest pieces. Seed-lac may be used as the uppermost coat, where a very delicate white is not required, taking care to use such as is least coloured.

Black.—Ivory-black or lamp-black; but if the lamp-black be used, it should be previously calcined in a closed crucible.

Black grounds may be formed on metal, by drying linseed oil only, when mixed with a little lamp-black. The work is then exposed in a stove to a heat which will render the oil black. The heat should be low at first, and increased very gradually, or it will blister. This kind of japan requires no polishing. It is extensively used for defending articles of ironmongery from rust.

Tortoise-shell ground for metal.—Cover the places intended to represent the transparent parts of the tortoise-shell, with a thin coat of vermilion in seed-lac varnish. Then brush over the whole with a varnish composed of linseed oil boiled with umber until it has an almost black colour. The varnish may be thinned with oil of turpentine before it is used. When the work is done, it may be set in an oven, with the same precautions as the black varnish last named.

Polishing of varnished and japanned Work.

Pictures and other subjects, to which only a single coat or two of thin varnish is given, are generally left to the polish which the varnish naturally possesses, or brightened only by rubbing it with a woollen cloth, after it is dry; but wherever several coats of varnish or japan are laid on, a glossy surface is produced by the means used to polish metals; the surface having first been suffered to become completely dry and hard.

Where the coat of varnish is very thick, the surface may be rubbed with pumice-stone and oil, till it becomes uniformly smooth; the pumice should first be reduced to a smooth flat face by rubbing it on a piece of freestone. The japanned or varnished surface may afterwards be rubbed with pumice reduced to an impalpable powder, by pounding and washing over, using oil and a rag or leather to lay on the powder. The finishing may be given by oil and a woollen rag only.

Where the varnish is thinner, and of a more delicate nature, it may be rubbed with tripoli or rotten-stone, in fine powder, finishing with oil as before. Where the ground is white, putty or Spanish white, finely washed, may be used instead of rotten-stone, of which the colour might have some tendency to injure the ground.

Preparation of Drying Linseed Oil.

Frequent references having been made, in the arts of varnishing and japanning, to the use of drying oil, it may be necessary to observe, that to render linseed oil drying, consists simply in mixing it with litharge, or any oxide of lead, boiling it slowly for some time, and straining it from the sediment, after it has stood to clarify. The oil thus treated, becomes thicker as it imbibes oxygen from the oxide, and acquires the property of drying much sooner than before. An ounce of litharge may be used to every pound of oil.

LACQUERING.

Lacquering is the application of transparent varnishes to metals, to prevent their tarnishing, or to give them a more agreeable colour.

When the colour of the metal to be lacquered is to be changed, the varnish is tinged with some colouring matter; but where preservation from rust or tarnish is the sole object, any of the transparent varnishes already described will answer, using the best and hardest where the greatest durability is required.

Lacquer to imitate Gilding.

Take eight ounces of amber, and two ounces of gum-lac, melt them in separate vessels, and mix them well together; then add half a pound of drying linseed oil. Into a pint phial, put half a pint of spirits of turpentine, and digest in it a little saffron; when the colour is extracted, strain the liquor, and add gum-tragacanth and annotta, finely powdered, and in small quantities at a time, till the required tone of colour is produced; then mix this colouring matter with the above ingredients, and shake them well together, till a perfect union takes place.

If this varnish be laid over silver leaf or tin-foil, it will be difficult to distinguish it by the eye from gold. It is by a varnish of this kind, that leather, paper, or wood, covered with silver leaf, is made to appear as if it were gilded. The lacquer is also applicable to tin-plate articles, but small articles of finely polished brass, are usually coated with a thinner composition.

A Lacquer for Tin or Brass.

Infuse one ounce of turmeric root, and two drachms of gum-tragacanth, in a pint of spirits of wine, and keep the mixture in a warm place for some days, frequently shaking it. Use this composition to strengthen the colour of seed-lac varnish, which may then be applied to the tin. The colour may be made weaker or stronger by using more or less gum-trgacanth.

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Achorid, or yellow Botany Bay gum, which may sometimes be had at the druggists, makes a good lacquer for tin or brass, by dissolving it in spirits of wine without heat. The achorid in drops is the best.

GILDING.

The processes of gilding are very various, but the principles upon which the gold is caused to adhere to the surfaces upon which it is applied, may be reduced to two; viz. chemical affinity, and the use of cements. All solid bodies may be gilt upon the latter principle, using thin leaves of gold; but metals only admit of the former, which is generally applied to them, because it is much more perfect than the other, and equally as easy to execute.

Gilding of Metals by Amalgamation.

Eight parts of gold and one of mercury are formed into an amalgam by using the gold in thin plates, making it red hot, and then putting it into the mercury which has been previously heated to ebullition. The gold immediately disappears, and combines with the mercury; the mixture is poured into cold water, and is ready for use. This amalgam is chiefly employed to gild copper and brass in the following manner: The article to be gilt is rubbed over with much diluted nitric acid, to remove any tarnish or rust which would prevent the amalgam from adhering. If a little mercury be dissolved in the nitric acid thus used, it facilitates the subsequent part of the process. The amalgam is applied to the piece by means of a brass wire brush, in as even a manner as possible. The piece is then set upon a grate over a fire, or into an oven heated to a degree at which mercury exhales. By this means the gold is left alone, and the defects which are observed in the piece after the first application, are rectified by repetitions of the process. After

the mercury has evaporated, the gold has only a dull yellow colour. To change this, it is brushed with the scratch brush, (made of brass wire,) till it has a smooth surface: it is then covered with gilding-wax, and exposed to the fire till the wax is burnt off. This wax is composed of four ounces of bee's wax, one ounce of acetate of copper, and one ounce of sulphate of copper. It heightens the colour a little, but a further improvement is effected, by covering it with a paste made of nitre and alum, mixed up with water or urine. It is then heated again, and suddenly plunged into cold water. The finishing operation is to burnish the piece with a blood-stone or steel burnisher.

Gilding by amalgamation in the large way, is extremely injurious to the workmen, on account of the fumes of mercury which they cannot avoid receiving into the system; but it may be practised in a single experiment or two without any harm resulting.

Cold Gilding of Silver.

Dissolve gold in the nitro-muriatic acid, and dip some fine linen rags into the solution; then burn the rags, in the manner that tinder is prepared, by first drying it, and then setting it on fire, and preserve the ashes. The silver to be gilt, must have a clean, burnished surface; and after having been rubbed with a solution of salt in water, it must be rubbed with the black powder or ashes, which may be taken up and laid on with a cork. The work is finished by burnishing.

Gilding of Brass and Copper.

Mathematical and other fine instruments made of brass, are generally gilt, as gilding is a much neater and more durable method of preserving them from tarnishing, than any kind of varnish or lacquer.

For this purpose, saturate nitro-muriatic acid with gold, and having evaporated the solution to an oily consistence, suffer it to crystallize. Dissolve these crystals in pure water, and dip into this watery solution of gold the articles which require to be gilt, which should have perfectly clean and polished surfaces; the finish is given by burnishing. The gilding may be made strong, by a frequent repetition of the process. It is advisable to use the solution of the chrystals in water, instead

of the nitro-muriatic solution, in order to prevent the intervention of any acid, which would injure the brass or copper.

Gilding of Iron and Steel.

The surface of the iron being first well polished, it must be heated till it becomes blue, when gold leaf must be applied to its surface and burnished down. It must then be heated again, and another layer of gold burnished on. This process must be repeated three or four times, according to the strength of the gilding required.

Another much more easy and elegant mode of gilding iron and steel, is the following. To a nitro-muriatic solution of gold, add about twice the quantity of sulphuric ether. The mixture must be made with caution, and in a large vessel. The liquids being shaken together, are to be left till they separate from each other, which will shortly take place, and the ether will float on the surface of the acid. The colour of the acid will have become brighter, that of the ether darker than before; because the ether has taken up the gold which the acid held in solution. The ether may be drawn off by a siphon; or pour the two fluids into a glass funnel, the pipe of which is stopped at the bottom, and when they have again separated as before, the aperture may be opened, and the whole of the acid allowed to run off. The auriferous ether will thus be obtained alone, and must be kept for use in bottles with air-tight stoppers.

Well polished articles of iron or steel may at any time be instantly gilt by dipping them into this ariferous ether, or by spreading the ether over them with a brush. Even a pen or pencil dipped in the ether may be employed to write or draw with, and the figures delineated will be beautifully gilded on the iron.

The essential oils of turpentine and lavender will take up the solution of gold in the same manner as ether.

Instruments used in applying leaf gold.

OF OIL GILDING, BURNISH GILDING, AND JAPANNERS' GILDING.

In these methods of gilding, leaf gold is employed; they are applicable to all substances that require gilding, though metals, as shewn above, can be better gilt by methods adapted to their peculiar nature. They are therefore chiefly employed for wood, paper, and leather.

The leaf gold which is manufactured for gilding, is of two qualities, viz. *pale gold* and *deep gold*. Pale gold contains a considerable proportion of silver, and tends to the colour of that metal. It is sometimes useful, by way of variety in japanning. Deep gold is the purest metal, and the richest in its colour.

Dutch gold, which consists almost entirely of copper, very soon tarnishes when exposed to the air; and should not, even when varnished, be used for any valuable purpose. As it is, however, scarcely a twelfth part of the value of true gold leaf, it is occasionally useful where large quantities of gilding are required for temporary purposes. It is used in the same manner as true gold.

The instruments used in gilding are the following:

A *cushion*, on to which the gold is taken from the books in which it is purchased, and cut to the size required, and laid out ready for taking up. It consists of a board of any convenient size, on which is laid two thicknesses of flannel, and covered with calf-skin, such as bookbinders use, with the rough or flesh side uppermost.

A *knife*, with which the gold is taken out of the book, and cut upon the cushion to the required size. It should be like a pallet-knife, and should have a smooth edge, though not very sharp. If in good order, the gold may be cut with it into strips not the tenth of an inch in breadth, without jagging, and without cutting the cushion. The gold is cut by gently pressing upon it, with a short reciprocating motion like that in using a saw.

The *tip*, which consists of a squirrel's tail with the hairs cut short. It is used for taking up whole leaves of gold, and applying them to the surface to be gilt. In order that it may take up the gold, it is moistened in some degree by breathing

upon it. A piece of strong writing paper, rubbed upon the skin of the face, or even upon the hair, may be used to take up leaves of gold.

Some loose cotton-wool is employed to press down the leaf which has been laid on, and to take up small pieces.

A large camel's-hair brush, is used for dusting the work, and taking off the superfluous gold when it is dry.

Oil Gilding.

The first operation is to prime the work, with a mixture of white lead and drying linseed oil. When the priming is dry, a thin coat of gold size is laid on the work, composed of stone ochre ground in fat oil; when this first coat is dry, a second is laid on for the best work, but in general one coat is made to suffice. When the gold size is so far dried that though it will not daub the fingers, it feels clammy, it is fit for gilding upon. The leaf gold is therefore taken up and laid upon it with the tip, pressed down with cotton-wool, and when every part of the surface is covered, it is left in a warm place to dry, and finished by brushing off the loose pieces of gold.

This kind of gilding is easily performed, and stands the weather well. It has no lustre, but that is for some purposes esteemed an excellence.

Burnish Gilding.

This kind of gilding is much employed for wood. The surface to be gilt is first made clean and smooth, it is then primed with a mixture of whiting and size, prepared by boiling parchment or white leather in water, till, when cold, it has the consistence of a jelly, Seven or eight coats of this composition are laid on. After the last coat is dry, the mouldings, if any, must be restored, by the use of proper tools, to the sharpness they are required to possess, and the parts intended to be burnished should be polished by rubbing them with a linen rag moistened with water. The whole is then to receive two coats of gilding size, which consists of parchment or white leather size, combined with a little Armenian bole. When the last of these coats is dry, the parts intended to be burnished are again rubbed smooth with a linen rag. A part of the work must now be wetted with water by means of a camel's-hair pencil and before this becomes dry, the gold leaf must be

applied as in oil-gilding; and thus proceeding by wetting no more at a time than can be gilded before the water dries, the work is continued till it is finished. The repairs required should be done as the work goes on, so that none of the imperfections may require fresh size; and care should be taken to prevent the water from running over any of the gold which has been laid on.

When the work has become firm, it should be burnished; this is done with the least labour, and imparts the highest lustre, when the surface is in a state little short of perfect dryness. The best burnishers are made of agate; the next of dog's tooth; steel may serve if very hard and highly polished, but it is apt to produce mischievous effects, by rubbing up the gold, if it acquire the least rust, or is not used with a very slow and careful motion.

Deep mouldings and other parts, which cannot be gilt, and which are not intended to appear neglected, are usually coloured with Dutch pink, or some other yellow, mixed up with size.

Japanner's Gilding.

The figures or parts intended to be gilt, must be coated with gold size by means of a hair pencil; the leaf gold is then applied as in the above modes of gilding, and after it is dry, the superfluous parts are brushed off.

The gold size is prepared in the following manner; take one pound of linseed oil and four ounces of gum animi. Set the oil to boil in a proper vessel, and then add the gum animi gradually in powder, stirring the oil all the time, and not adding a second quantity till the former appears to be dissolved. Let the mixture continue to boil, till, on taking a small quantity out, it appears of a thicker consistence than tar, then strain the whole through a coarse cloth, and keep it for use. When it is wanted it is ground with vermillion, and diluted with spirits of turpentine to the consistence proper for working. This gold size may be employed for gilding surfaces of almost every kind.

When great brilliancy is not wanted, shell gold may be used instead of gold leaf, to gild upon the size.

Gilding of Paper and Leather.

Letters written with ink containing a large proportion of gum arabic, if breathed upon, and gold leaf immediately

applied, will retain the gold, wherever the pen has marked, and the remainder of the leaf may be brushed off. Or letters may be formed with the shell-gold, prepared as directed below.

The edges of paper and books are gilded with a size composed of whites of eggs beaten up with three or four times their quantity of water, and mixed with a little Armenian bole.

The bookbinders gild the leather of books, by coating the leather two or three times with whites of eggs, well beaten up, but not mixed with water. When the last coat is dry, they rub a very minute quantity of tallow over the leather, and then cover it with gold leaf. The stamps or letters which they require, are cut in brass in the manner of printing types; these being heated just so much as the leather will bear without shrivelling, they press them gently upon the gold leaf, which thus becomes fixed in every part touched by the stamp, and the useless gold is rubbed off with a linen rag. The tallow is used merely to make the gold come off freely, where the stamp makes no impression. The due heat of the stamp can only be determined by experience; it differs a little with the texture of the leather.

Gilding of Porcelain and Glass.

Draw the design with the japanner's gold size, prepared as above directed; set it near the fire or in an oven, for a few minutes, or till it becomes of such a warmth that it can just be held in the hand; then apply the gold leaf, after which put the vessel into an oven, and let it remain there for two or three hours at the least; when dry, it may be burnished.

The most durable method of gilding glass or porcelain, is by burning in: for this purpose, dissolve gold in nitro-muriatic acid, and precipitate it by putting copper into the acid. Mix this precipitate with a strong solution of borax and gum-water, and when the design is drawn with it, the gold will be fixed by burning in, as in painting on glass.

Preparation of Shell Gold.

Grind gold leaf with pure honey, until it appears to be completely divided among the honey; then wash away the honey with water, and mix the gold powder with gum-water. The gold thus prepared, may be applied to any surface in the

same manner as a colour, and forms at once a very tolerable gilding.

Preparation of the fat Oil used in Gilding.

Take any vessel having a considerable surface, and fill it to the depth of six inches with water; then pour in as much linseed oil as will, when it has risen to the surface, form a layer of about an inch in thickness. Expose the oil, thus circumstanced, to the action of the sun and air, until it assumes nearly the consistence of treacle, which in summer will require five or six weeks. Then draw off the oil into a tall bottle, and set it in a warm place, till it becomes perfectly fluid, when it may be poured off from the water and foulness, which will subside, and after being strained through a flannel, may be kept for use.

SILVERING.

Wood, paper, and all similar substances, are silvered in the same manner as they are gilded, by substituting silver leaf fo gold leaf; and using whiting only, instead of Armenian bole or ochre, to mix with the size forming the ground. Silvered surfaces are sometimes made to resemble gold leaf by lacquering them.

To silver Copper and Brass.

Dissolve silver in nitric acid, by the assistance of heat; put some pieces of copper into the solution, and the silver will be precipitated. With fifteen or twenty grains, of the precipitate thus obtained, mix two drachms of tartar, the like quantity of common salt, and half a drachm of alum. With this mixture rub the clean surface of copper till it becomes white, and then finish it by polishing with leather. The surface of the copper is usually cleansed, by washing it with much diluted nitric acid, before the mixture is applied.

Copper may also be silvered by dipping it into a weak solution of mercury in nitric acid; then rubbing it with the preci-

pitate above mentioned and common salt. Dial-plates may be silvered in this manner; and the silvering may be strengthened when there is occasion, by heating it, till the mercury is driven off, and the silver united by fusion to the metal, then repeating the process. Dial-plates are usually preserved by a coat of transparent varnish.

Copper may also be silvered by heating it, and burnishing silver leaf upon it, till a sufficient coat is given. This is called French plate, and is very flimsy.

To silver Ivory.

Immerse the ivory in a weak solution of nitrate of silver, till its colour appears to be a bright yellow; take the ivory out of the solution, and expose it, under water, to the rays of the sun. In two or three hours it becomes black; but the blackness changes to the colour of silver, by taking it out of the water and rubbing it.

To prepare Shell-Silver

Shell silver is prepared in exactly the same manner as shell gold, see page 804.

To silver Plane Mirrors.

In silvering mirrors, no silver is employed; the composition with which they are coated at the back consists of an amalgam of mercury and plates of tin called tin-foil.

Upon a horizontal table of stone, perfectly smooth and level, lay down some paper, a little larger than the glass to be silvered; dust evenly upon it some finely-washed whiting, and upon the whiting lay down tin-foil, also a little larger than the glass. Holding the tin-foil by one end, brush it over gently with a hair's foot or a piece of cotton wool, to make it lie close. Pour a small quantity of mercury upon the tin, and spread it evenly over the whole surface with the hair's foot: then pour on a larger quantity of mercury, and spread it evenly in like manner. Place a sheet of paper upon the mercury, and make it touch in every part by the hair's foot; then laying the plate even with one edge of the paper, carry it over the whole surface, gently touching the paper as it advances, and place it

exactly over the middle of the tin foil. Gently draw out the paper next to the glass, without lifting up the glass, though when it is heavy, it will be necessary to relieve its pressure. Place several thicknesses of paper upon the glass, and upon these let considerable weights be distributed over the whole surface. In a day or two the amalgam will have become firm, and adhering perfectly to the glass, when the weights may be removed, and the looking-glass is ready for framing.

The paper employed between the amalgam and the glass, should be thin, smooth, and entirely free from knots. Its use is to assist in obtaining the contact of the mercury and the glass, without air-bubbles or raising the foil. It might be dispensed with by bringing the glass horizontally over the mercury, and driving some of the mercury before it, but there would be more risk of injuring the foil by accident.

The surface of the glass should be perfectly clean, and freed especially from grease.

The stone table should be surrounded with a groove to retain the superfluous mercury.

To Silver convex and concave Mirrors.

Surround the glass with a border, two or three inches high, made of several folds of stiff paper, or of pasteboard; then pour upon its convex side a mixture of plaster of Paris and water. When the plaster has hardened, which will be in about half an hour, the border may be taken off, and the glass separated; and to render this more easy, it should be rubbed over with an oily cloth before the plaster is poured on. Then cast a similar mould in the concave side of the glass. These moulds will be dry in two or three days; by spreading tin-foil on the concave one, the convex side of a glass may be silvered, or by spreading it on the convex mould, the concave side of the glass may be silvered. In either case, the spare mould being put on the glass serves as the means of applying the requisite weight in an even manner. The paper employed in silvering plane mirrors must be omitted, and in silvering the concave side, a border of paper should surround the plaster, to retain the mercury till the glass has been put down, when it may be removed, or a hole made in the border to let the mercury run off.

To silver Glass Globes.

Take equal quantities of tin and lead, and melt them together; when they are fluid, add to them two parts of bismuth; take the mixture from the fire, and before it hardens add to it two parts of mercury, and stir the whole till united. As soon as the mass becomes cool enough for the glass to bear, pour it into the globe by means of a funnel. Then move the globe slowly, in such a manner that the amalgam may touch every part of its interior. If it have the proper tenacity, it will leave a thin film of its substance adhering to every part of the glass which it touches; when not sufficiently fluid to do this, the fault may be remedied by warmth: when too fluid, the amalgam must be taken out, and some more tin, lead, and bismuth, must be added to it.

MOULDING AND CASTING IN PLASTER.

The greatest difficulty which presents itself in this art, to young practitioners, arises from the want of good plaster, of which both the moulds and the casts themselves are made. The plasterers, marble-masons, and other artisans who use this article, make it answer their purpose in a state so inferior to that in which it may be obtained, and so variable, too, in its properties, that the use of it, as prepared for them, is certain to occasion an immensity of trouble and disappointment. We shall therefore give directions for obtaining plaster in perfection, and the operator will find the recipe of infinitely more consequence to him, than all the general instructions which can be given in relation to other branches of the subject.

Preparation of Plaster of Paris.

Take any quantity of finely-powdered gypsum, which is the name of plaster of Paris in its raw state, and put it into an iron pan or boiler, which may be filled to within a few inches of the

brim. Set the boiler upon a good fire, and stir the powder with a rake, to heat it uniformly. When the powder becomes hot, bubbles will rise to its surface, and it will have all the appearance of a fluid. The boiling must be continued till the bubbling ceases; the operation is then finished, and nothing more is required than to cover the boiler with a lid, and to allow the plaster to cool gradually, in a warm place, by removing it to one side of the fire, suffering the fire to die out.

The plaster thus prepared may be depended on; when mixed with water to the consistence of cream, and poured upon any figure, it hardens in a few minutes, and takes a very sharp impression: by gradual drying, it afterwards acquires almost the hardness of stone. Drying in an oven, although necessary for some purposes, inevitably renders all plaster tender; but after having been prepared as above directed, it will have a considerable degree of cohesion, when other kinds, heated in the same manner, will drop to powder under the slightest pressure.

When plaster is not used immediately after it is made, it should be kept in air-tight casks; for it may be regarded as a species of quicklime; and the longer it is suffered to absorb the moisture which it greedily takes from the atmosphere, the more it is injured.

Plaster is usually prepared by calcining lumps of gypsum in an oven, and though some care may be taken to have the lumps nearly of a size, it is plain there can be no such thing in the usual routine of this business, with common labourers, as heating it uniformly and to the just degree, nor of suffering a due portion of water to escape from every particle alike: by too much heat, the sulphuric acid may in a great measure be driven from it, and then it can be of little value; when cold, it is taken to be ground, during which operation it is leisurely exposed to the atmosphere; it is then, like wheaten flour, kept in open bins for sale. Thus it appears that in every step of the ordinary mode of preparing and managing plaster, its properties are deteriorated; without a word of reference to the adulterations frequently practised.

When the plaster is required for very delicate purposes, it should be sifted before it is used, but not otherwise, if it have been well ground. The sifting is performed with so much rapidity, that the exposure to the air which the plaster receives during the proccss, cannot sensibly hurt it: it may be sifted before it is boiled, but not so quickly as afterwards, because it clogs the sieve.

Gypsum, or raw plaster, exists in inexhaustible quantities in Derbyshire, Westmoreland, and some other counties. It

may generally be bought in the state of stone, of those who manufacture it, and sometimes those persons who prepare and sell it in the ordinary way will undertake to grind it raw. If, however, the stone can be obtained, a small quantity may be formed by pounding in a mortar; but almost every village will afford some means or other of reducing it to powder by machinery, where the demand may be considerable.

Of Moulding.

A mould is the impression of any subject taken in some plastic substance, for the purpose of forming the resemblance of that subject, by filling its hollows with a suitable material, and then separating the casting from it. The original subject may either itself be a cast, or the product of manual labour. The manner in which a mould of it is made, depends very much upon its form. Supposing it to be a simple bass-relief, like a coin, it is obvious that any substance poured upon it will separate easily, if there be no cohesion between the two surfaces: therefore to mould such a subject, it is necessary to surround it with an edging, which should be sufficiently high to allow a proper strength for the mould. The surface of the subject being slightly coated with oil, the plaster must be mixed with water, and instantly poured on to the requisite depth. When the plaster has acquired the hardness of bee's wax, the border may be taken off, and the original separated by drawing it evenly from the mould.

The mould thus obtained, is allowed gradually to dry, and being soaked with tallow or oil, any number of casts, like the original, may be made with it. If lead or any other metal is intended to be cast in the mould, it must be dried in an oven, that every particle of moisture may be evaporated, to prevent the hazard of an explosion.

When there are undercuttings in the bass-relief, so that the plaster poured upon it would run into cavities, from which it could not be drawn up, but would break in them, these undercuttings must be filled up with plaster, from which, when it is dry, and has been made smooth, the plaster poured on to form the mould, will easily separate. Then when the casts have been made from the mould, they are finished by restoring the undercuttings with proper tools.

Where the original subject or model is a bust, or any complex figure of that nature, after it has been oiled in every part, the plaster is mixed up to the consistence of paste, and immediately applied to it with the hands. After it is dry, it is

divided by a very thin-bladed knife, and taken off in such portions as will separate perfectly from the original; the adjoining parts are marked, so that they can easily be put together in their proper order. When the different parts have been dried and oiled, and are completely put together again, plaster is poured into the interior of the mould thus prepared by means of a small aperture, and the mould is turned in every direction, so that the plaster may adhere to every part within it, and when a sufficient quantity of plaster is poured in to produce the strength required in the cast, the remainder is left hollow, both for the sake of lightness, and to save expense in plaster. When the cast is dry, it is extricated by separating the pieces of which the mould is composed, and it is finished, where it appears to require it, with chisels or any similar tools.

The above is the usual process; but as layers of fluid plaster laid one over another, are weaker considerably than when the whole is poured in at once, the part intended to be left hollow may be filled with a core, which may be a piece of wood, when the figure of the hollow part designed to be left will be such that the wood can be drawn out; or when this is not the case, the core may be of clay, which is easily retained in its place by wires from the mouth of the aperture; the clay may be picked out when the cast is perfectly hardened.

Casts from the faces of living persons are frequently taken in plaster: the hair is tied back, the eyes are closed, a hollow roll of paper is put up each nostril to breathe through, and the skin is anointed with salad oil: the newest and best plaster being used, it sets and may be separated in a few minutes.

Plaster moulds in which metals are designed to be run, should contain an admixture of talc, or pumice-stone, to enable them to endure the heat better.

Various substances as well as plaster are used for taking models and casts: those which are fluid are used nearly in the same manner as fluid plaster, for similar subjects; and those which are plastic, are used like the plaster employed of the consistence of paste. Sulphur, isinglass, and clay, are often used. Sulphur and isinglass are very proper for medals and small subjects: thus if a medal be surrounded with a rim of paper, plaster may be poured upon it to form a mould: then when this mould is dried and saturated with oil, it may itself be surrounded with a rim, in the same manner as the medal, and melted sulphur, or a strong solution of isinglass in proof spirit, poured upon it. Either sulphur or isinglass will take a very sharp impression, and they may be beautifully coloured

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by mixing them with vermilion, or other suitable colours. The isinglass forms a substance like horn, and has the advantage of not being brittle. It is particularly proper for silver medals, which sulphur would blacken.

When clay is used for moulds or casts, it should be freed from all gravel and rough sand, and well beaten up with finely-washed sand, to enable it to endure drying without shrinking.

To harden and bronze Plaster Figures.

The hardening of plaster figures may be very simply and effectually performed by boiling them for a quarter of an hour in a solution of alum in water.

To bronze plaster figures, they should first be dipped into or brushed over with isinglass size, till they will imbibe no more; then with a painter's brush, every part of the size which has not sunk into the plaster must be removed, to prevent injuring the sharpness of any of the mouldings. When the figure is dry, brush it over with gold size, prepared as before directed, but use no more of this size than will just moisten the surface, and make it shine. Now leave the figure for a couple of days, in a dry place, where it will be free from receiving dust or smoke, and it will be prepared for bronzing. The bronze, which is a fine powder, and may be had at the colour shops, should be dabbed on with a little cotton-wool; and after every part has been touched, the figure may be set aside for another day. It will afterwards be completed, by rubbing off the loose bronze with a soft brush, or a piece of cotton-wool.

The figures thus bronzed will resist the weather. The bronze may be had of all metallic colours; but that which gives the figures the appearance of real bronze, and the preparation of which is given at page 390 of this vol. has the best effect.

To varnish Plaster.

In a pint of water, put a quarter of an ounce avoirdupoise of the finest white soap grated small. Set them over the fire in a glazed earthen vessel, and when the soap is dissolved, add a quarter of an ounce of bleached wax, cut into small pieces, and stir the fluid till the whole is incorporated, when it is fit for use. Suspend the model to be varnished by a thread, and dip it into this preparation; take it out, and after the lapse of a quarter of an hour, dip it again. Let it stand for about a week, and it may then be polished by rubbing it very gently with a piece of soft fine linen, so as not to remove the varnish.

Use of crucibles superseded in casting brass.

Another mode of varnishing plaster, but which will not stand the weather like the above, is to brush it over with skimmed milk, till it will imbibe no more, which, after it is dry, will by gently rubbing appear like polished marble.

DESCRIPTION OF A FURNACE FOR THE FOUNDERS OF HARD BRASS.

Brass-founders frequently sustain a very considerable loss by the destruction of the crucibles in which they melt their metal. When this happens in the furnace, which is no uncommon case even to new crucibles, the brass, running into the ash-pit, is generally so much dispersed as not to be worth the trouble of recovery, and even when the crucibles stand tolerably well, the expense of them is still an object of moment. To prevent therefore the inconvenience which crucibles occasion, we have the pleasure to state, that the reverberatory furnace described below is perfectly effective. We are indebted for the communication to the liberality of a correspondent, who has experienced its utility during several years' use.

Fig. 1, (plate Miscellanies,) is a vertical section of this furnace, from the front to the back. Fig. 2, is a section across the bed of the furnace at the tap-hole. Fig. 3, is a horizontal section at the height of the fire-place hearth. The same letters refer to the same parts in all the figures.

a, The flue leading into the chimney. *b*, the door, (made of fire lute,) at which the metal is put in. C, the bed for containing the metal. *d*, the entrance downwards into the ash-hole. *e*, the ash-hole, which is to be closed when the furnace is in use. *f*, the fire-place hearth. *g*, an air-hole, to support the combustion of the fuel. *h*, the entrance at which the fuel is put in; it may be closed sufficiently by the coals themselves. *i*, the brick-arch or crown of the furnace; this arch, as well as the sides of the furnace, should be built of Stourbridge bricks. O, the tap-hole, at which the metal is let out, when completely fused. The size of the furnace represented in the plate, as designated by the scale, will contain upwards of three quarters of a hundred-weight of metal.

General directions for staining wood.

STAINING WOOD.

Stains do not lie, like paints, upon the surface of wood, but sink more or less into its substance. Hence the wood which has been stained, exhibits its natural grain and hardness: and it must be remembered, that if the wood be not white, the colour taken will be a compound of that of the wood and the stain. The dyeing woods employed must be understood to be in small chips, or raspings.

When the wood is mentioned to be brushed several times over with any fluid, it should be dried previous to each repetition of the operation. The woods which have been stained, are afterwards rubbed up with rushes, then with a cloth, dipped in a solution of bees' wax in spirits of turpentine; and afterwards rubbed with a woollen cloth alone. When the stain is intended to be very deep, the pieces should be boiled in the staining liquor, and not merely brushed over.

To stain Wood Red.

Take two ounces of Brazil wood, and two ounces of potash; mix them with a quart of water; and let the composition stand in a warm place for several days, stirring it occasionally. With this liquor, made boiling hot, brush over the wood, till the desired depth of colour is obtained. Then with another brush, brush over the wood, while yet wet, with a solution of alum, in the proportion of two ounces of alum to a quart of water.

For a pink or rose red, use double the quantity of potashes.

To stain Wood Yellow.

Infuse an ounce of turmeric in a pint of spirits of wine, and let the mixture stand for several days closely covered, shaking it occasionally. Brush over the wood with this infusion. A reddish yellow may be given to the colour by the addition of a little gum-tragacanth.

Diluted nitric acid will stain wood yellow.

Staining wood.

To stain Wood Green.

Dissolve verdigris in vinegar, or crystals of verdegris in water, and brush over the wood with the hot solution.

To stain Wood Blue.

Dissolve copper in diluted nitric acid, and brush it while hot several times over the wood; then make a solution of pearl-ashes, in the proportion of two ounces to a pint of water, and brush over the stain made with the solution of copper, till the colour be perfectly blue.

The green stain made as above with verdegris, may be changed to a blue by the solution of pearl-ashes.

The sulphate of indigo, which may be had ready prepared of the dyers, will, when diluted with water, make a blue stain.

To stain Wood Black.

Brush the wood several times with a hot decoction of logwood, then several times with common ink.

To make a very fine black, brush over the wood with a solution of copper in nitric acid as for blue, and afterwards with logwood, till all the greenness of the copper solution is gone.

To stain Wood Purple.

Take one ounce of logwood, and two drachms of Brazil wood; boil them together in a quart of water over a moderate fire. When one half of the fluid is evaporated, strain the decoction, and brush it several times over the wood. After the wood is dry, brush it over with a solution of a drachm of pearl-ashes in a pint of water.

To stain Wood a Mahogany Colour.

Two ounces of madder, and one ounce of fustic, boiled in a quart of water, make a light mahogany stain: but a dark stain may be obtained by using half an ounce of logwood, instead of the madder, and brushing the stained wood over with a weak solution of potash.

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CONSTRUCTION OF A TEMPORARY SCAFFOLD,

FOR REPAIRING THE INTERIOR OF DOMES.

This scaffold is contrived to move round on an upright pole, in the centre of the dome, and on two wheels running on the floor, so that it can be turned to all parts of the interior of the dome.

Fig. 4, (plate Miscellanies) represents an oblique elevation of the scaffold, as erected in the dome RR, of the building S. The chief support is a straight scaffold pole, AA, which turns on a pivot at the top, supported by a piece of wood fixed across the top of the dome in the centre; and is supported at the bottom on another pivot, resting in a step of wood fixed on the floor. To this pole, a light braced frame is fixed, and traverses round on two rollers BB; these are situated at the bottom of the two upright legs KK, which are nearly as high as the walls of the building. The tops of these support the ends of two curved planks CC, the upper ends of which are bolted on each side of the centre-pole at D. Between these planks, a number of boards or planks are placed horizontally, so as to form a scaffold, on which the workmen stand to work at the interior of the dome, at any height they find convenient. The width of these steps gradually diminish from the space between the two uprights BB, to a very small width at the pole near D.

The whole machine is braced by the two diagonal stays II, extending from the uprights at the bottom BB, and secured to the upper part of the pole at E.

The curved planks CC are also strengthened and supported by the short braces FF, GG, and HH, which extend from the stays II to the curves CC; these form a strong and secure scaffold, which may be easily moved round to any part of the internal dome at pleasure. To strengthen the frame sideways, diagonal braces are applied between the two uprights KK.

This scaffold is the invention of G. Hughes, a respectable painter and plasterer of Manchester. It was used for repairing and beautifying the Exchange in that town, and the expense of its erection did not exceed £4; the estimate for a scaffold on the common plan, for the like purpose, would have been £40 or £50. The inventor was rewarded by the Society for the Encouragement of Arts, &c. with a silver medal.

In cases where the elevation of the dome is very considerable, a great degree of security might be obtained, by the addition of a railing to the scaffold.

Fig. 2

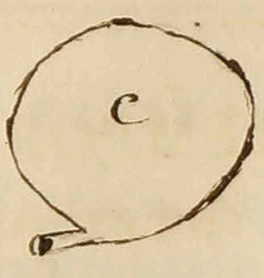


Fig 3

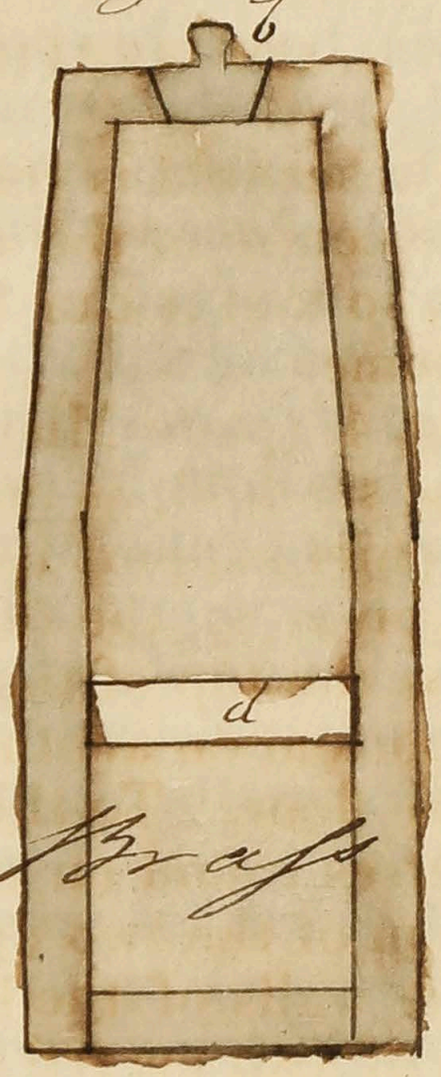
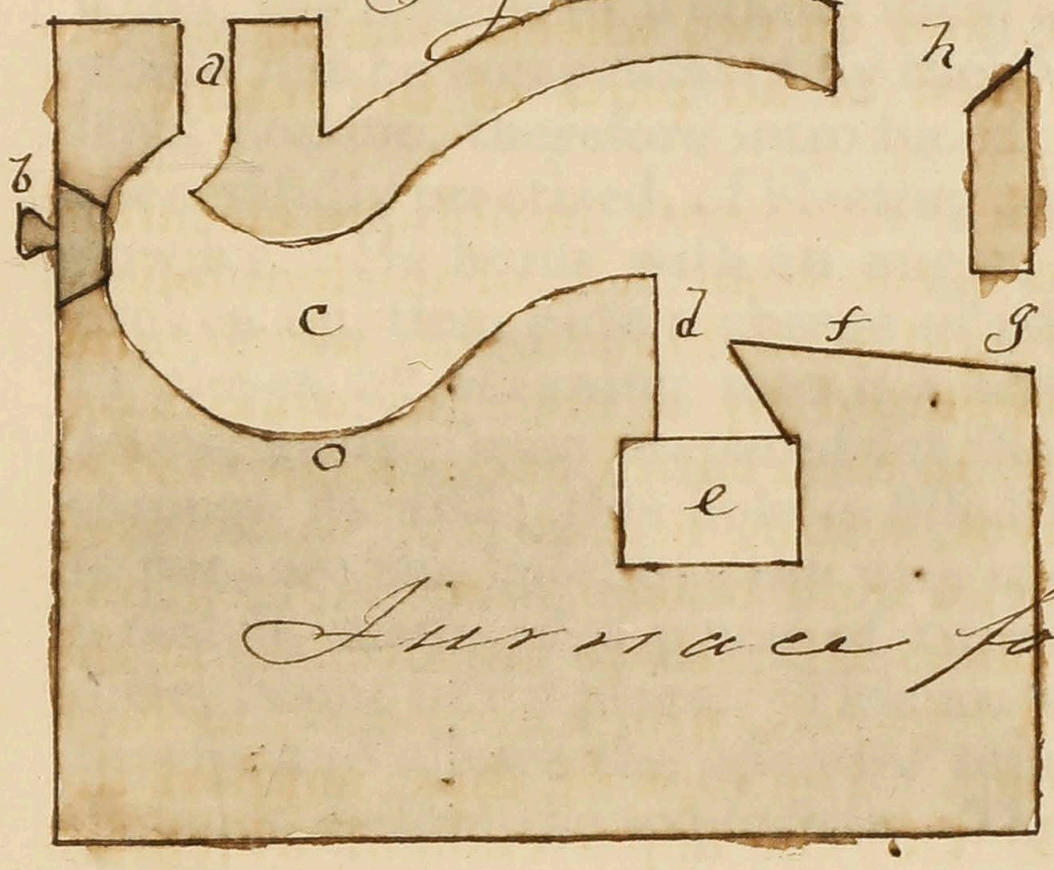
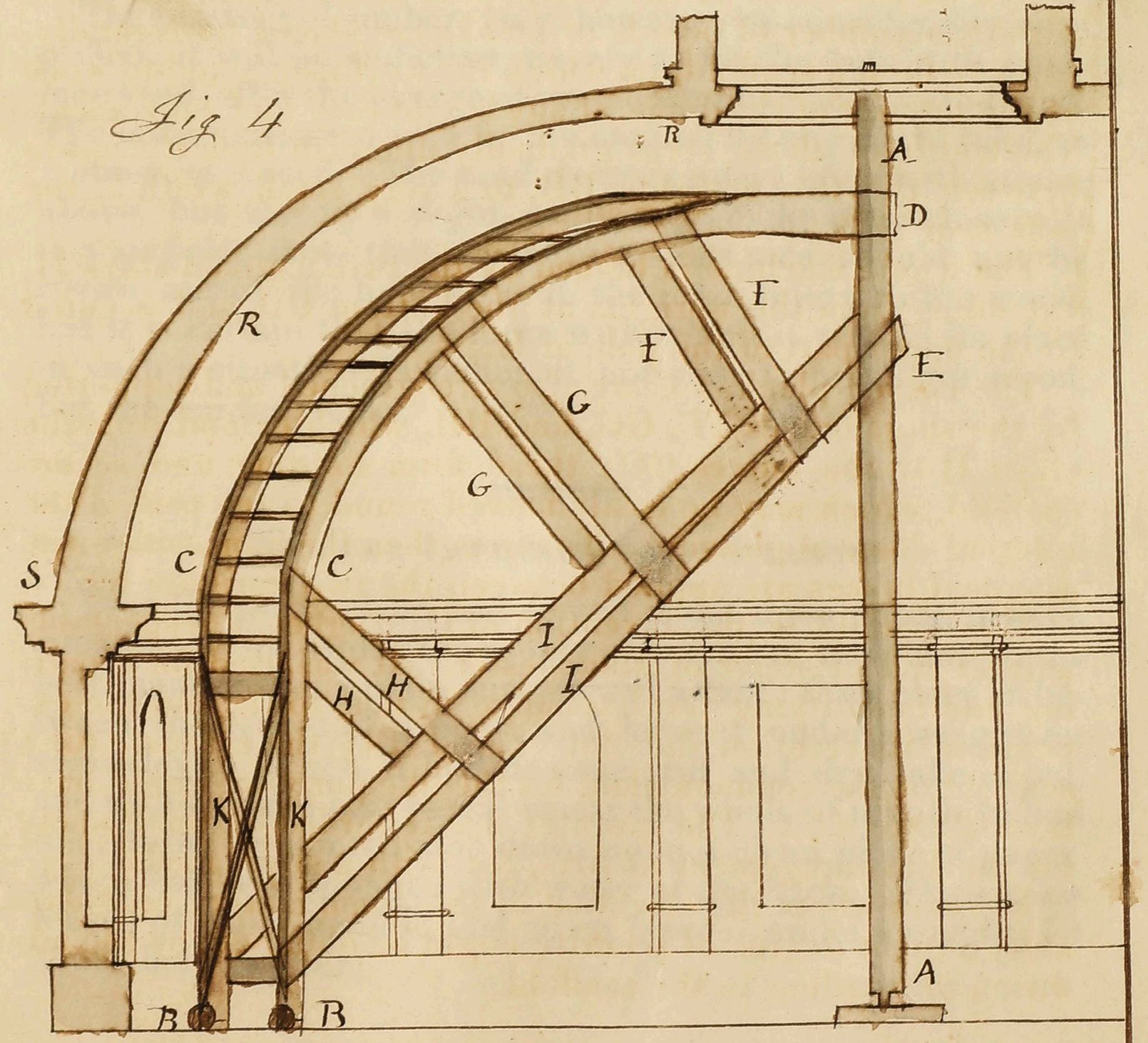


Fig. 1

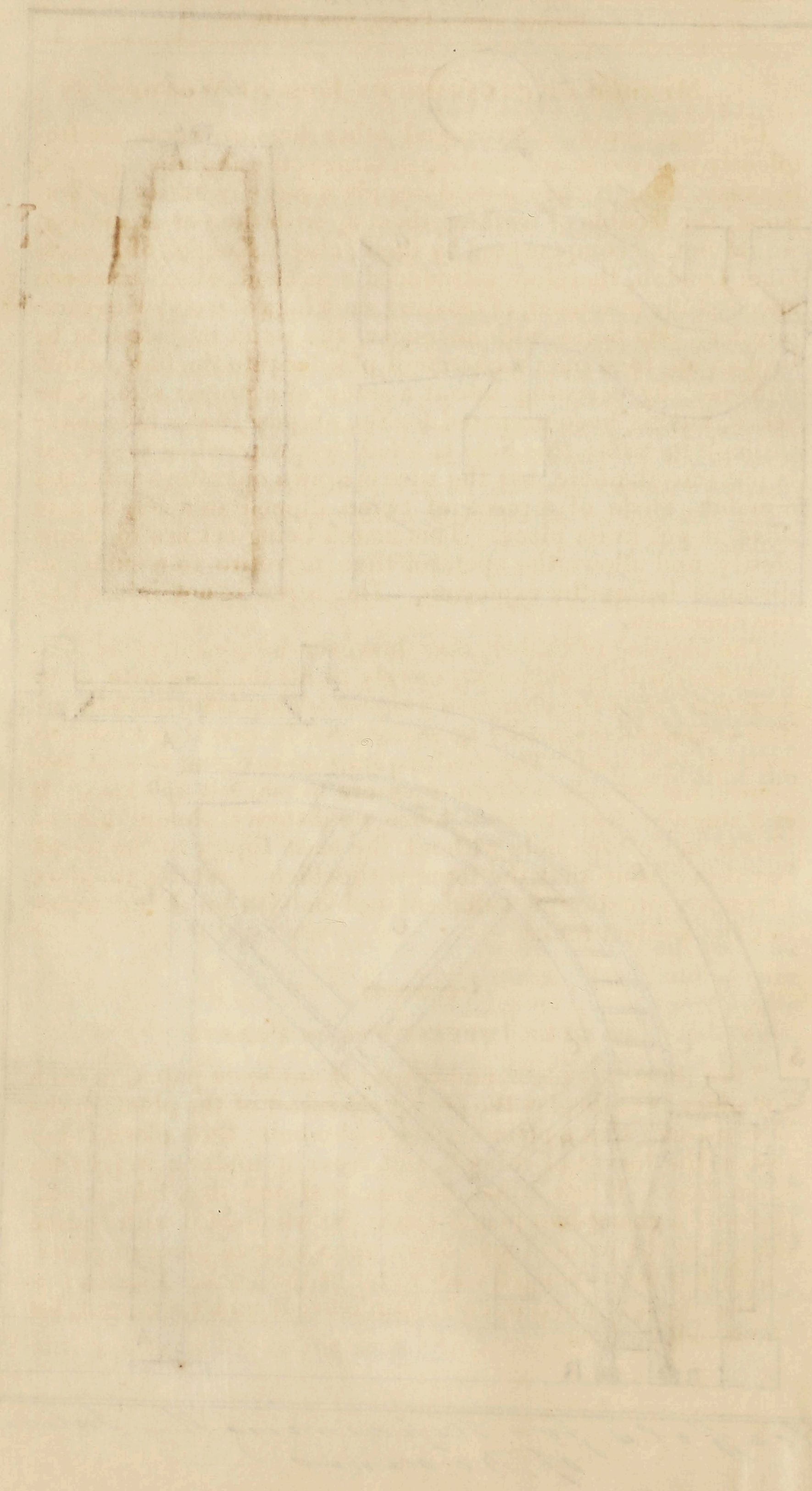


Furnace for Brass

Fig 4



Scaffold for Repairing the Interior of Dooms



Blasting wood.—Printing from plants.

Method of breaking up Logs of Wood.

The large roots of trees, and other logs of wood, are frequently suffered to accumulate in farm-yards and other places, because, though they would supply a large quantity of firewood, the trouble of working them up with the saw or the axe, would not be compensated by their value. Knight, of Foster-lane, London, therefore introduced a method, which has been successfully practised, of blasting such logs of wood with gunpowder. He bores with an auger, the wood intended to be broken up, then puts a charge of powder into the hole, which he closes by screwing into it a screw of a proper size. The screw, having been prepared for the purpose, has a hole made through its axis; this hole is filled by a wire when the screw is put into the hole, but the wire is drawn out afterwards, and a match, made of a piece of twine, dipped in a solution of nitre, is put in its place. This match being set fire to, burns slowly, and allows the operator time to retire to a sufficient distance before the explosion. The screw is not injured by the operation.

The blasting of timber, may, however, be considerably simplified; it will be sufficient, merely to fill the hole with common sand, after the charge of gunpowder has been introduced. The communication may be maintained by any slight tube, as a straw, or a reed. The sand requires no wedging with stones above, but merely a slight pressure to make it lie close. It is a singular fact, that so loose a substance should not be blown out of the hole without the least injury to the wood, but it is certain that the force with which it retains its place in such a situation, is sufficient not only to break up wood, but the hardest rocks.

To take Impressions of Plants.

Take the green plant, and spread it out upon paper, in such a manner as to display the proper character of the plant, in the best manner that a plain surface will admit: then place it between the leaves of a book, and leave it under a weight for some days. When it has become stiff and dry, take it out, and with a camel-hair pencil smear the whole of it with Indian ink; turn the painted side down upon a clean piece of paper which has been sponged with water at the back. Place a few leaves of paper upon it, and again leave it under a weight, for about half an hour.

In this manner impressions of plants may be taken, which will have a soft and beautiful effect, and will characterise the plant with a degree of force not often observed in engravings. Care should be taken that the ink be not used so plentifully as to make the impression too black, or to press out beyond the limits of the specimen. Any slight deficiencies which appear, may be supplied with a pencil.

It has been usually recommended to use a printer's ball and ink for taking impresssions; but the effect in this way is not superior, the difficulty of managing the process is increased, and the conveniences required are not so easily attainable. Those balls which persons may make for themselves of white leather, as substitutes for printer's balls, will not answer, as they will lay the ink on in a daubing disagreeable manner, very differently to those balls which the printers have in con stant use, and which are made of raw skins.

Method of cutting Glass by Heat.

Take a piece of dense charcoal, made from box or some other hard wood, and point it like a pencil. Scratch the glass, at the place where the fracture is to begin, with any instrument of hard steel, such as the corner of a file. Light the point of the charcoal, and applying it to the scratch, proceed with pressing it upon the glass in the direction of the intended fracture. The glass will crack in the path of the burning point, and the crack may be either in a right line, or zigzag, or curved, at pleasure. As fast as the point of the charcoal becomes covered with ashes, it should be blown upon with the breath to keep it red hot, or it will not heat the glass sufficiently to produce the desired effect. The scratch made on the glass at the commencement, need scarcely be more than a point.

Method of filling up Engraving on Silver with a durable black Enamel, as practised in Russia, Persia, and India.

Take half an ounce of silver, 2½ ounces of copper, 3½ ounces of lead, and 2½ ounces of muriate of ammonia; melt the metals together, and pour the compound into a crucible which has been before filled with pulverized sulphur, made into a paste by means of water: the crucible is then immediately covered, that the sulphur may not take fire, and the mix ture is calcined over a smelting fire, until the superfluous sul-

phur is burnt away. The compound is then coarsely pounded, and with a solution of muriate of ammonia formed into a paste, which is rubbed into the engraving on silver plate. The silver is then wiped clean, and suffered to become so hot under the muffle, that the substance rubbed into the strokes of the engraving melts and adheres to the metal. The silver is afterwards wetted with the solution of muriate of ammonia, and again placed under the muffle till it becomes red hot. After this, the engraved surface may be smoothed and polished, without any danger of the black substance, which is an artificial kind of silver ore, either dropping out or decaying.

Method of making Sealing Wax.

Take any quantity of shell-lac in powder; add to it half its weight of rosin, and half its weight of vermilion. Melt these ingredients over a gentle fire, and when they are thoroughly incorporated, work the composition into sticks, rolls, or any other form desired.

This composition makes a fine, hard, red sealing wax: any other colour may be obtained by using a pigment of the colour desired, instead of vermilion.

Red lead is used instead of vermilion for common red wax, and the quality of the composition is further debased by reversing the proportions of rosin and shell-lac.

The whitest rosin should be used for all bright colours. The wax will be more tenacious, if turpentine, boiled with a little water till it is hard, is used instead of rosin. The lowest heat at which the ingredients can be melted, should also not be exceeded.

The sealing wax may be softened by adding white wax to it; it is formed into sticks by rolling it upon a stone while it is yet soft; and is polished merely by melting its surface over a fire, and letting it cool without being touched.

Method of taking Impressions on Paper, from Designs made on Stone.

Take a fine-grained stone which will imbibe water, let the surface of it be made smooth, flat, and free from scratches, but not polished; draw or write on it with ink formed by dissolving lac in a ley of pure soda, and intimately incorporated

with some lamp-black, that the strokes made with it may be distinctly seen. When the design is completed, leave it to dry and harden for three or four days, and it will then be ready for using in the following manner. Immerse the stone in water for a couple of hours; on taking it out, remove the water lying on its surface with a fine piece of linen or silk; then dab the design with a printing-ball, in the same manner that printers dab the wood cuts they are printing. The printing ink will adhere to the design, because the resinous composition with which it was made, not imbibing water, was dried by the linen or silk rag; but the bare surface of the stone repels the ink, because the water has entered its texture. The impression may be taken on damp paper by means of a printing press, or by the rolling press of copperplate printers. Several hundred copies may be taken from the same design in this simple manner. When the printing press is employed, the thickness of the slab should be equal to the height of printing types, or about nine-tenths of an inch, and must be very flat on both sides, or the pressure will be apt to break it; the edge of the upper surface should be rounded, that it may not catch the ink from the printing ball.

The stone employed should be of a light colour, that the design may be easily seen upon it; and of a fine grain, that the pen may move easily over it, and make perfect strokes; yet it must be easily penetrable by water; the stone which has hitherto been found the best, is of the calcareous class, nearly white: the most porous kinds of light blue slate would probably answer.

The art of printing from stone, above described, has recently become particularly interesting, by the prospect there appears to be, that it may in part supersede the use of engraving upon copper and wood. The effect of the impressions much resembles that of chalk engraving, but designs exhibiting considerable precision have been executed in this style, and it will probably yet receive great improvement; its greatest defect is uniformity of tone, but it affords artists the singular advantage of having their original sketches multiplied by printing, without either the expense of engraving them, or the loss of spirit to which they are liable in the copying and recopying which engraving requires.

Ppocess for removing Spots of Grease from Books and Prints.

After having gently warmed the paper stained with grease,

wax, oil, or any fat body whatever, take out as much as possible by means of blotting paper, having first scraped off with a blunt knife what was not sunk in, and gently warmed the stained part. Then dip a small brush in well rectified spirits of turpentine, heated almost to ebullition, (for when cold it acts very weakly,) and draw it gently over both sides of the paper, which must be carefully kept warm. This operation must be repeated as many times as the quantity of the fat body imbibed by the paper, or the thickness of the paper, may render necessary.

When the grease is entirely removed, recourse may be had to the following method to restore the paper to its former whiteness, which is not completely restored by the first process. Dip another brush in alcohol, and draw it, in like manner, over the place which was stained, and particularly round the edges, to remove the border that would still present a stain.

By employing these means with proper caution, the spot will totally disappear, and the paper assume its original whiteness; if the process has been employed upon a part written on with common ink, it will experience no alteration.

Method of discovering whether Wine contains any Metal prejudicial to Health.

Mix equal parts of oyster-shells and crude sulphur in fine powder, and put the mixture into a crucible. Heat it in a wind furnace, and increase the heat suddenly, so as to bring the crucible to a white heat for the space of fifteen minutes. Pulverize the mass when it is cool, and preserve it in a bottle closely stopped.

To prepare the proving liquor, put one hundred and twenty grains of this powder, and one hundred and twenty grains of cream of tartar, into a strong bottle; fill the bottle with common water, which boil for an hour, and then let it cool; close the bottle immediately and shake it for some time. After it has remained at rest to settle, decant the pure liquor, and pour it into small phials capable of holding about an ounce each, first dropping into each of them about twenty drops of muriatic acid. They must be stopped very closely with a piece of wax, in which there is a small mixture of turpentine.

One part of this liquor, mixed with three parts of suspected wine, will discover, by a very sensible black precipitate, the least traces of lead, or copper; it precipitates arsenic of an orange colour, but produces no effect upon iron, if the wine

contain any of that metal. When the precipitate has fallen down, it may still be discovered whether the wine contains iron, by saturating the decanted liquor with cream of tartar, (super-tartrate of potass) by which the liquor will immediately become black. Iron, which is not noxious, but rather salutary, frequently gets into wines by accident.

Pure wines remain clear and bright, after this proving liquor has been added to them.

Method of preserving Birds.

Open the bird at the vent, extract the entrails, lungs, craw, &c. wash out the cavity with a solution of one ounce of muriate of ammonia dissolved in a quart of water, in which afterwards two ounces of corrosive sublimate of mercury must be put; or four ounces of arsenic may be boiled in two quarts of water, till all, or the greatest part, be dissolved. Suspend the bird by the bill to drain; then strew the inside with a powder, made of four parts of tobacco sand, four parts of pounded pepper, one part of burnt alum, and one part of corrosive sublimate or arsenic; then fill the body with oakum or tow, steeped in the above liquor; take out the tongue, and scoop out the brain through the mouth; fill these cavities also with steeped tow. The attitude is given by sharp-pointed wires, one end being thrust through the legs, breast, and neck, also through the wings and body across. Dry the bird gently in an oven, taking care that the heat is not too powerful, which may be known by a feather or a hair, put for trial's sake into it. If the heat be proper, the feather will neither crisp, curl, nor bend. If at any time the bird gets moist, have recourse to the oven, or a gentle fire, which will recover its lost elasticity, and preserve it any length of time. Eyes may be procured at any glass manufactory, or they may be bought at any of the dealers in birds and curiosities in London; or the eye sockets may be filled up with putty, and painted according to nature.

The recipe of the late Sir Ashton Lever, for preserving birds, was a mixture of one pound of salt, four ounces of alum, and two ounces of black pepper; in every other matter as just directed, except the use of the liquid, and drying the subject by the oven. He suspended the birds by the feet, in a fine, cool, airy place, for the salts to impregnate the body; afterwards by a thread run through the under mandible, till it appeared to be perfectly sweet; then hung it in the sun or near the fire.

The preserver of birds, at the late Leverian Museum, adopted a very excellent mode of supplying his subjects with eyes; it consists in using a hemisphere of polished glass, on the plane side of which is painted a correct representation of the iris, pupil, &c. of the eye. The eyes thus formed, have a lively natural effect.

To render Boots and Shoes waterproof.

Take one pint of drying oil, two ounces of yellow wax, two ounces of spirits of turpentine, and half an ounce of Burgundy pitch; melt them over a slow fire, and thoroughly incorporate them by stirring. Lay this mixture on new shoes and boots, either in the sun or at some distance from the fire, with a sponge or brush; and repeat the operation as often as they become dry, until they are fully saturated. The shoes and boots thus prepared, ought not to be worn until the leather has become perfectly dry and elastic. They will then be found impervious to moisture, and their durability will be increased.

Fluid for Steeping Seeds, to prevent the Depredations of Vermin.

H. Brown, of Derby, observes to the Society for the Encouragement of Arts, &c. that when he steeped seeds for three or four hours, or for a sufficient length of time to penetrate the husk, in a strong solution of liver of sulphur, he never lost a seed by vermin during a three years' trial.

Effects of elder on insects.—Strong lemon juice.—Vinegar.

Preservation of Crops by Elder.

If branches of elder be brushed occasionally over plants, such as cabbages, cauliflowers, turnips, or any other productions of the garden, the operation is found to have a remarkable effect in preserving the plants from the attacks of insects, and also preserving fruit-trees from being blighted.

Method of obtaining very strong Lemon Juice.

Express the juice of ripe lemons in the usual manner, and strain it through a piece of linen. In half an hour strain it again, to free it from the small portion of slimy matter which will have settled at the bottom of the vessel. Then add to the juice some of the strongest spirits of wine, and preserve the liquor for some days in a well corked bottle. Filter the liquor through paper; but if too thick to pass through the filter, dilute it again with spirits of wine. After the last filtration, the acid of lemons may be freed from the spirits of wine by the evaporation of the latter. The acid, after being thus freed from the spirits of wine and moisture combined with it, assumes a yellowish colour, and becomes so strong, that by its taste it might be considered a mineral acid.

New Mode of preparing Vinegar.

Take a cask made of oak, of a size proportioned to the quantity of vinegar required; this cask must have a bung about an inch and a half from the bottom, for the purpose of drawing off the liquor, but it must be set on one end to perform the operation. Rain or river water only can be used for this preparation; a quantity of either must be put into the cask equal to the quantity of vinegar required.

To 13 quarts of water, add half a pint of brandy, 4 ounces of tartrate of potass, 12 ounces of sugar, and 6 ounces of yeast

Reduce the tartrate and sugar to powder, dissolve them in warm rain water, adding the yeast, so as to form a thick solution, which, being mixed with the brandy, must be poured into the cask, and the latter must be placed in a warm situation for about six weeks.

Before the cask is bunged up, the water and other ingredients contained in it should be shaken together, to mix them as much as possible. Half an hour is sufficient to render the mixture complete. This vinegar, when drawn off into bottles and well corked, will keep a long time, and is not inferior to any vinegar hitherto known.

A new, easy, and cheap Method of impregnating Water with Carbonic Acid Gas.

Dr. Fierlinger has proposed the following very simple mode of impregnating water with carbonic acid gas. He fills common round bottles with water, inverts them carefully under water, in order to prevent any air from entering, and charges them with carbonic acid gas, in the usual manner of transferring gasses from one vessel to another, (see p. 308 of this vol.) He then corks the bottles, thus filled, under water with a ventilated stopper, immerses them under water in a cylindrical vessel, two feet high, and of a proportionate width to the diameter of the bottle, in order to apply, according to hydrostatic laws, a great pressure with a small quantity of water. The bottles thus filled with the gas, and entirely immersed, imbibe water by means of the affinity the carbonic acid has for it, in such a manner that they are nearly filled; and water is thereby obtained, impregnated with an equal volume of gas, the water having lodged itself in the interstices of the gas.

This method has, besides its convenience and cheapness, still other advantages; the degree of impregnation may be regulated by the height of the column of water under which the bottle is immersed, and the water is prepared in those vessels out of which it is to be drank, and this prevents that escape of gas which always takes place in pouring from one vessel to another, especially if the water be strongly impregnated.

The above-mentioned ventilated stoppers, are corks fitted exactly to the bottles, perforated lengthways, by holes drilled through them, the uppermost orifices of which are covered

with a small plate of pewter, fastened to the cork by means of a string passed through a hole in the centre, and drawn through the cork. If this small plate be furnished with a little cavity, in which iron filings are put, the water becomes chalybeate.

On the Application of Platina to Porcelain.

For this purpose, platina is dissolved, in nitro-muriatic acid, and precipitated by a solution of muriate of ammonia. The red crystalline precipitate formed is to be dried, reduced to a fine powder, and made slightly red hot in a glass retort. The muriate of ammonia, which had precipitated in combination with the platina, sublimes; and the metal remains at the bottom of the retort in the form of a light gray powder. This powder being mixed with a small proportion of flux, as is done with gold, and ground with oil of spike, is to be applied to the porcelain, put into the furnace, and afterwards burnished.

Platina, applied on porcelain in this manner, is of a silver white, slightly tending to the gray of steel. By alloying this metal in different proportions with gold, different shades of this colour are obtained. Platina admits a considerable quantity of gold, before its colour undergoes any perceptible change to yellow. For example, if one part of platina be alloyed with four parts of gold, the presence of the latter cannot be perceived, and the colour scarcely differs from that of pure platina. The colour of the gold does not predominate, unless it be in the proportion of eight to one. The alloys of platina with silver give only a dull metal.

Besides this method of applying platina to porcelain, it may be laid on in the state of solution. In this way, its colour, lustre, and appearance, are very different. If the nitro-muriatic solution of platina be evaporated to a consistence suitable for painting with, and several times laid on the porcelain, the metal penetrates into its substance, which, after it comes out of the furnace, exhibits a metallic mirror of the colour and brilliancy of polished steel.

To obtain Nitric Ether without Heat.

Into a tubulated retort is introduced one ounce of sugar, and two ounces of pure alcohol are poured upon it. To the retort is adapted a capacious receiver, enveloped with a cloth dipped in cold water, and the joinings are secured with a single slip of paper. Upon this matter, three ounces of highly concentrated and smoking nitric acid are poured through the tube of the retort. An effervescence instantly takes place, the mass becomes heated, the sugar is dissolved, ebullition ensues, and the alcohol is etherized, and passes from the retort into the receiver. Thus, in a little time, may be collected in the receiver all the alcohol, converted into excellent ether, of a light orange colour, and a very agreeable smell; which does not turn vegetable blue dyes red, and acts in every respect like the best ether from nitric acid.

After the fermentation of the ether, a small quantity of nitrous gas is disengaged in this operation; it is discovered by a red vapour, which spreads through the apparatus. As soon as it is observed, the receiver should be changed. In the retort is left some sugar, which may easily be converted into oxalic acid, by treating it with a fresh quantity of nitric acid.

Method of preparing perfectly pure Caustic Ley

Boil equal parts of purified salt of tartar, (tartrate of potash, or vegetable alkali prepared from tartar,) and Carrara marble, burnt to lime, with a sufficient quantity of water, in a polished iron kettle; strain the ley through clean linen, and though yet turbid, reduce it by boiling, till it contain about one half of its weight of caustic alkali; after which pass it once more through a linen cloth, and set it by in a glass bottle. After some days, when the ley has become clear of itself, by standing, carefully pour it off from the sediment into another bottle. To be convinced of its purity, saturate part of it with muriatic or nitric acid, evaporate it to dryness, and re-dissolve it in water. If it be pure, no turbidness will take place in the solution. The quantity of caustic alkali, which this ley contains, may be ascertained by evaporating a certain weighed por-

tion of the ley to dryness, in an evaporating dish of a known weight. In the preparation of this caustic ley care should be taken that the alkali be not entirely deprived of carbonic acid, because in that case we can, with greater certainty, depend on the total absence of dissolved calcareous earth. By employing burnt marble, or, in its stead, burnt oyster-shells, the usual contamination of the caustic ley with aluminous earth may be avoided; because lime, prepared from the common species of limestone, is seldom free from argil.

Charcoal Crucibles.

In the analysis of fossils, Klaproth found charcoal crucibles of great utility: he used them in the following manner: taking a sufficiently large fragment of well-burned charcoal, he made in it a cavity of a size answering to that of the fossil. This cavity, after the fossil was put into it, was closed with a charcoal stopper; after which the charcoal crucible was fitted into a crucible of baked clay, and this last was well joined to its cover by luting.

In order to make comparative experiments, he placed another quantity of each fossil immediately in a crucible made of clay unmixed with iron. After the cover had been luted on, it was exposed to the same heat.

Method of preparing a cheap Substitute for Oil-paint.

It often happens that people do not choose, or cannot employ oil-painting in the country, either because it does not dry soon enough, and has a disagreeable smell, or because it is too costly. Ludicke employed with the greatest success the following composition for painting ceilings, gates, doors, and even furniture.

Take fresh curds, and bruise the lumps on a grinding-stone, or in an earthen pan or mortar, with a spatula. After this operation, put them in a pot with an equal quantity of lime, well quenched, and become thick enough to be kneaded: stir

this mixture well without adding water, and a whitish semi-fluid mass will be obtained, which may be applied with great facility like paint, and which dries very speedily. It must be employed the day it is prepared, as it will become too thick the day following. Ochre, Armenian bole, and all colours which hold with lime, may be mixed with it, according to the colour desired; but care must be taken that the addition of colour made to the first mixture of curds and lime, contain very little water, or it will diminish the durability of the painting.

When two coats of this paint have been laid on, it may be polished with a piece of woollen cloth, or other proper substance, and it will become as bright as varnish. This kind of painting, besides its cheapness, possesses the advantage of admitting two coats to be laid on and polished in one day, as it dries speedily, and has no smell.

Preparation of the Substance called Asses Skin, used for Memorandum Books, &c.

Take either vellum, parchment, very fine cloth, or paper, and stretch it in a frame as tight as possible; then take twelve pounds of white lead, and grind it very fine; add to it one-third part of the best plaster of Paris, and one-fourth part of the best stone lime; mix them well together, and levigate them thoroughly with water. Then take a new glazed vessel, and dissolve six or seven pounds of the best double size over a fire, and mix the above ingredients with it till it is of such a consistence that it may be laid on with a brush. Lay three or four layers of this composition on the skin or cloth, as smooth as possible, observing that the skin is dry each time, before a second layer is laid on. Then take the best nut or linseed oil, and to every pound of this oil add four ounces of the best white varnish, and mix them well together. Lay on three or four layers of oil, thus prepared, each time exposing the surface to the air till it is thoroughly dry.

The above composition is for the white sort of artificial asses' skin; for a brown or yellow, add to every pound of the oil and white varnish, three or four ounces of the best stone ochre, or orpiment, or Dutch pink, and three or four ounces of litharge. These must be well ground with very old linseed oil, and laid on, as smooth as possible, ten or twelve times

exposing the surface each time to the air, to be thoroughly dry before a second coat is given; and it must be placed where no dust or dirt can fall upon it. The colour may in the same manner be varied at pleasure; as, for instance, to a red by vermilion, to a blue by Prussian blue; and to a black by pounding slate, grinding it very fine, and mixing it with as much ivory black as will turn it to a fine black colour.

When the skin, paper, or cloth, thus prepared, is thoroughly dry, it may be written on with a black or red lead pencil.

To make Artificial Grindstones.

In India, they form grindstones in the following manner: take of river-sand three parts, of washed seed-lac one part; mix them over the fire in a pot, and form the mass into the shape of a grindstone, having a square hole in the centre; fix it on an axis with the liquefied lac, heat the stone moderately, and by turning the axis, it may easily be formed into an exact orbicular shape.

Polishing grindstones are made only of such sand as will pass easily through fine muslin, in the proportion of two parts of sand to one of lac.

To preserve Wood in damp situations.

Two coats of the following preparation are to be applied, after which the wood is subject to no deterioration whatever from humidity. 12lbs of rosin are to be beaten in a mortar, to which three pounds of sulphur, and 12 pints of whale oil, are to be added. This mixture is to be melted over the fire, and stirred during the operation. Ochre, reduced to an impalpable powder by triturating it with oil, may then be combined in the proportion necessary to give either a lighter or a darker colour to the material. The first coat should be put on lightly, having been previously heated; the second may be applied in two or three days, and a third after an equal interval, if, from the peculiar dampness of the situation, it should be judged expedient.

Patent Size.

In the year 1800, a patent was taken out by Thomas Foden, of Coventry, for making size agreeably to the following specification:

"I take a quantity of calcined gypsum, or any other calcareous or argillaceous earth, and reduce it to a fine powder. I then mix the same with alum, sugar, and the gluten or farina of potatoes, or any other vegetable gluten. I then take any given portion of this powder, and mix it well with cold water, into a soft paste. Then I take water in a state of ebullition, and pour it on the mixture, stirring it round till it is sufficiently united and gelatinous. I then, by the addition of the vegetable or mineral alkali, treacle, or glue, temper it to all weathers. This size will be found superior to any made with flour, glue, &c. in the sizing and dressing all kinds of yarn, as the mucus from flour requires to be corrected by a strong alkali."

Method of preparing Britannic Elastic Gum.

Take linseed-oil, or nut-oil, one gallon; bees-wax, yellow or bleached, one pound; glue or size, six pounds; verdigris, a quarter of a pound; litharge, a quarter of a pound; spring or rain water, two quarts: to be put into an iron kettle, and melted till the whole becomes a uniform composition.

For this preparation a patent was taken out. The inventor states it to be very serviceable in the several branches of portrait and house painting, by making the colours durable and free from peeling; also of great utility in gilding, painting, pencilling, and straining of silks, calicoes, &c. and in dressing of silk, linen, and cotton, in the loom, instead of gum or paste, so as to strengthen the threads of the finest cotton; and also excellent for beautifying and fixing the colours upon paper, equal to that done in India; and of the greatest use for rendering the clay, or composition used in modelling, supple, and preventing the same from drying too fast; and for causing a transparency of colours fit for china and earthenware, so as to stand baking or burning.

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Restoration of effaced writings.—New kind of oil.

Method of restoring Writings effaced by oxygenated Muriatic Acid.

This process was published in the Moniteur, by order of the French government. It was invented by Guietaud, apothecary of the Grand Hospital of Humanity.

The sulphuret of ammonia and the prussiate of potass are the two substances which he prefers. The disagreeable smell of the sulphuret of ammonia will no doubt prevent many persons from employing it: it has, however, this advantage, that it does not stain the paper, and that it makes the writing re-appear when simply exposed to its vapour in a close vessel, or under a bell-glass. But to produce this effect more speedily, it will be best to pour a few drops of it into water, and to dip the paper in it: the effaced writing soon re-appears of a dark brown colour, and exceedingly legible.

The prussiate of potass gives a blue colour to the writing, whether that effaced or that which has been substituted for it; which is sufficient to detect fraud of this kind: it gives to paper, at the same time, a slight tint of blue. To employ it, put into a basin, or any other deep vessel, and of a suitable size, as much water as may be sufficient for immersing the leaves of paper to be subjected to examination. Then add about half a thimble-full of the prussiate; and, when it has been well mixed with the water, immerse in the liquid a leaf of paper. When it has imbibed the liquid well, a few drops of sulphuric, or any other acid, poured into the mixture in such a manner as to render it slightly acid, will be sufficient to make the writing re-appear. It is well known, that the same substance possesses the property of reviving old writing, if employed in the like manner

Of the Oil obtained from the oliferous China Radish.

The oliferous China radish, (the *raphanush Chinensis annuus oliferus* of Linnæus,) has of late years been cultivated in Piedmont and the Milanese. From 3½ ounces of seed, a farmer, named Grandi, obtained a produce of 583 pounds, which

yielded 200 pounds weight of oil. The Chinese extract from the seed half its weight of oil. This oil is employed by the Italians for culinary use; it burns without emitting smoke, and gives quite as clear a light as common oil. In the Milanese, the plant is sown between the beginning of March and the middle of April. The land is ploughed in autumn, and again before the seed is sown, but is not manured. It is then rolled, so that the seed is covered about half an inch. The plants are thinned, so as to leave a distance between them of not less than 2½ inches, and not more than five. If broken down by hail or other accidents, they push out new shoots, which yield seed equally good and abundant with the parent stem.

CHEMICAL EXPERIMENTS.

The Chemical Weather-Glass

A bottle or vessel of glass, about ten inches long, and three quarters of an inch in diameter, filled with a peculiar mixture, has been recently sold to answer the purpose of the barometer, by the changes which it exhibits according to the state of the weather. The following is stated by Wiegleb to be the mode of composing this fluid. Two drachms of camphor, half a drachm of purified nitre, and half a drachm of muriate of ammonia, are to be pulverized, and dissolved in two ounces of proof spirits. This composition is to be put into a glass vessel, as above described, the mouth of which is to be covered with paper, or a piece of bladder perforated with a needle.

The changes which appear in this composition are stated to be of the following nature. If the weather promise to be *fine*, the solid matter of the composition will settle at the bottom

of the tube while the liquid is pellucid; but previous to a change for rain, the compound will gradually rise, the fluid will continue transparent, and small stars will be observed moving or floating about within the vessel.

Twenty-four hours before a storm, or very high wind, the substance will be partly on the surface of the liquid, apparently in the form of a leaf: the fluid in such case will be very turbid, and in a state resembling fermentation.

During the winter, small stars being in motion, the compo sition is remarkably white, and somewhat higher than usual, particularly when white frosts or snow prevail. On the contrary, in the summer, if the weather be hot and serene, the substance subsides closely to the bottom of the glass tube.

Lastly, it may be ascertained from what point of the compass the wind blows, by observing that the solid particles adhere more closely to the bottom, on the side opposite to that where the tempest arises.

The Phosphoric Fire or Match Bottle.

Take a piece of phosphorus, about the size of a pea, put it into a very small phial, and fill up the bottle with quicklime in powder. Set the bottle in the midst of some sand contained in an iron vessel of any kind, and place the iron vessel over a gentle fire. The bottle should be loosely stopped with a cork, and while it is gradually warming, its contents should be occasionally stirred; but two great an access of air must be avoided, to prevent their catching fire. When the whole of the lime has become of a reddish yellow colour, the phosphorus may be considered as having combined with it, and the bottle may be taken from the fire. It should be kept well corked, and opened as seldom and for as short a time as possible. When a brimstone match is introduced into this composition, and stirred about a little, it will instantly be lighted.

Another mode of forming a fire-bottle, consists in mixing one part of sulphur with eight of phosphorus. A match introduced into this composition, and then rubbed upon a piece of cork or any similar substance, is immediately lighted by the friction.

Gilding of a ribbon.—Artificial volcanoes.—Combustion of oil.

To gild a Ribbon chemically.

Take a silk ribbon, wet it thoroughly with phosphorized ether, and then dip it into a solution of muriate of gold, which will gild it in a manner that will bear washing.

The phosphorized ether is prepared by letting ether stand over phosphorus for some weeks.

The Artificial Volcanoes.

Take nitre and cream of tartar, of each one ounce; let them be reduced to a fine dry powder, and well mixed; add to them a little powdered charcoal, and raise the whole into a heap, in the form of a pyramid; set fire to the vertex, and the clouds of smoke, the flashes of light, the hissing noise, and the torrents of red-hot lava which will roll down the sides, entitle it to the appellation of the artificial volcano. The residuum is vegetable alkali, which may be kept in bottles for use.

Mix equal quantities of flowers of sulphur and iron filings or turnings, form them into a paste with water, and bury the mass in the earth at the depth of about a foot. In about twelve hours afterwards, if the weather be warm, the earth will swell up and burst, flames will issue forth, and a yellow and blackish dust will be scattered about. There should be a considerable mass of the composition; for example, fifty pounds.

Beautiful Appearance from the sudden Combustion of Oil.

Pour half a spoonful of olive oil into a small crucible, obscurely red, or at that degree of heat, which will have been discovered by some previous experiments. A thick cloud of white smoke will immediately rise, which takes fire at its

summit, that is to say, four or five feet distant from the crucible. If, on the contrary, the combustion of the cloud arises from the crucible, it is occasioned by the heat being too great. In that case it will be proper to wait a few minutes, when the phenomenon will appear in all its magnificence.

Gas Light.

Fill the bowl of a tobacco-pipe with pulverized coal, and lute the mouth of it with a mixture of clay and sand. Put it in the fire, and when it becomes red hot, apply a lighted candle to the end of the tube; the gas which issues from it will take fire, and will continue to burn with a bright flame, till the coal in the pipe-head is burnt to a cinder. The gas thus obtained is the carburetted hydrogen which is employed under the name of gas-lights. The residuum in the bowl of the pipe is coke.

Detonating Mixture.

Mix sulphuret of antimony with half its weight of hyper-oxymuriate of potass, place a few grains of the mixture upon an anvil, and strike it sharply with a hammer; it will explode with a loud report, and an intense light.

Fulminating Powder.

Mix together in a mortar, three parts of nitre, two of pot-ash, and one of sulphur. Put a little of this powder upon a shovel, and heat it slowly by placing the shovel on the fire. At the instant of its beginning to melt, it explodes with a violent report. This compound is not dangerous, like the metallic fulminating powders; but as much of it as will lie upon a sixpence, is sufficient to use at a time.

Combustion under water.—Heat from two cold fluids.—Transcolorations.

Combustion under Water.

Put a small quantity of hyper-oxymuriate of potass and a bit of posphorus into a wine glass, and pour cold water upon them. Take a glass tube, and dip one end of it into sulphuric acid, press with a finger upon the upper orifice, to retain the acid which has entered the tube, and convey that end to the bottom of the wine glass, and then taking the finger from the top of the tube, the acid will immediately cause the combustion of the ingredients under water.

Heat produced by the mixture of two cold Fluids.

To any quantity of sulphuric acid, in a glass bottle, add one-fourth of its measure of water, and shake up the mixture once or twice. The part of the bottle occupied by the fluid will immediately become too hot to be held in the hand. Unless the bottle be strong, it is advisable not to make suddenly more than half a pint of the mixture, to avoid any accident.

Transcolorations.

To a weak solution of galls, add a few drops of weak solution of sulphate of iron: the fluids, separately, are transparent, and devoid of colour, or very nearly so, but the mixture is black. Add to the mixture, by degrees, some muriatic acid, which will cause it to lose its blackness, and become transparent; add to this compound a strong solution of potash, which is colourless, and it will recover its blackness.

Mix an ounce of nitre with six drachms of black oxide of manganese, and expose the mixture to a red heat in a crucible. Take a dark-coloured mass thus prepared, and when

cold, put it into a glass vessel, pour a little water upon it, and the colour will be green; add more water, and the colour becomes blue; a further quantity makes it *purple*. The sulphuret of lime destroys its colour.

If calomel, which is white, be rubbed in a mortar with a solution of caustic ammonia, which is also without colour, the mixture becomes a deep black.

To a tincture of litmus or violets, or any other vegetable blue, add some diluted sulphate of indigo; the mixture will immediately become *red*.

Form a colourless solution of nitrate of copper in water; add to it liquid ammonia (spirits of hartshorn) which is also colourless, and the mixture will exhibit a deep blue colour.

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APPENDIX.

On the Preparation and Use of Copal Varnish as a vehicle preferable to Oil for the purposes of the Painter, and of a Varnish for Drawings and Prints.*

By the following process, a fine solution of copal in spirits of turpentine may be prepared without heat. It is quite transparent, colourless, durable, and protects colours from change.

Take the cleanest and whitest lumps of copal; beat them small, and pick out all the impurities. Pound them to a fine mass in a glass or Wedgwood's mortar; then pour in colourless spirits of turpentine to about one-third higher than the copal, and work up the whole quite fine. In half an hour work it up again till fine (if left too long it will get so tough as not to be rubbed up again;) and in an hour work it up again, and once or twice more in the course of the day. The next morning it may be poured off into a bottle for use; but as it is thicker or thinner according to the quantity of turpentine and the heat of the weather, it should be tried as follows before it is bottled up: dip a palette-knife into it, and dry the varnish adhering to the knife by the fire as quickly as you can without burning it; and if, when cold, a fair coat of varnish is found to be left on the knife, it is strong enough: otherwise work it up again, and let it stand some time longer. After taking off this first supply, pour on a fresh quantity of turpentine, and rub it up several times during two or three days:—try it by the palette-knife as before; and when strong enough, pour the liquid off into the same bottle with the first. A third quantity of the spirits might be added, which would

* Proposed by Varley, in Phil. Mag. v. 51.

make the remaining copal appear as dry as crumb of bread, and a much longer time would be required for the solution.

The common spirits of turpentine seems to dissolve copal best; but when that cannot be had colourless, the rectified spirits may be employed.

To paint with this varnish, use powder colours ground quite fine; or else grind them in spirits of turpentine, and add as much of the varnish as will bind them well. Keep them in bottles, and for use mix the tints in saucers, thinning them with pure spirits of turpentine as they thicken in drying. It is best to make the varnish so thin as not to shine when the paint is dry; but if it work too dry, moisten with a little more varnish till that fault be rectified; and if it become too thick, so as to work gummy, add powder colour and spirits of turpentine till it is brought to a proper consistence. The saucers of colours, if arranged in a small chest of drawers, will be kept clean, and in a small compass; and the colours will be continually set for use, as they only require moistening in the morning with spirits of turpentine; or without waiting to soften them in this way, fresh colour out of the bottles may be put upon the old.

The colours work freest, and dry quickest, when they do not shine, and will remain exactly as they are laid on; but if there is too much varnish, and the canvass is painted frequently over in the same day, the sharp touches will spread a little;—a fault which must be avoided by using no more varnish than just enough to shine, and by drying the part more perfectly before painting on it. In cold weather the drying may be effected by the fire, or by holding a hot iron before the canvass; in cold weather also, the painting must not be exposed to a fire directly after a part of it is done, as it would melt and run, but it should be suffered to dry for two or three hours, and then be brought to the fire to finish. To ensure the purity of the materials, the picture may be varnished with the same varnish made thicker; and when varnished, it should be dried as soon as convenient, by approaching the fire, avoiding a heat that would melt the copal. After this perfect drying, no dirt or smoke will ever stick to the picture; but it may be dusted, or may be washed quite clean with pure water, and will never change.

Another copal varnish may be prepared as follows: Take the sediment of the first varnish, or fresh copal beaten small; cover it to about twice its height with spirits of turpentine in which camphor, in the proportion of an ounce to a quart, is dissolved, cork it up, shake it well, and put it by for a year, at the end of which time it will be dissolved. The first por-

tion that is dissolved thickens the spirits of turpentine, and enables it to dissolve the remainder; but if the spirits of turpentine be too much diluted, the remainder will never dissolve, so that it is easier to make thick camphor varnish than thin. It must not, however, be made too thick, but when that which is put by is thick enough, pour it off for use, and add fresh camphor and spirits of turpentine to the remainder, and put it by again till dissolved, which it will be in the course of time. If the mixture put by be wanted before the copal is quite dissolved, it may be put into a saucepan of cold water, with the cork loosened, and made to boil for an hour, stirring it thoroughly two or three times towards the end of the boiling, and the solution will be finished.

Small pictures may be painted on the finest mill-board glued to a deal frame; and care should be taken to prevent large pictures from swagging, by not allowing the canvass to be tightened afterwards, but cutting the picture off the frame on which it was painted, and then pasting it to very tight canvass, protected by pannels from swagging and eventual cracking.

A third varnish is quickly made by oil of spike-lavender, which is very good for drawings or prints, but will not do for pictures, as it will dissolve the paint underneath, and run down while drying.

Method of preparing Ivory Paper, for the use of Miniature Painters.

The properties which render ivory so desirable a substance for the miniature painter and other artists are, the evenness and fineness of its grain; its allowing all water colours laid on its surface to be washed out with a soft wet brush, and the facility with which the artist may scrape off the colour from any particular part, by means of the point of a knife or other convenient instrument, and thus heighten and add brilliancy to the lights in his painting, more expeditiously and efficaciously than can be done in any other way.

The objections to ivory are its high price, the impossibility of obtaining plates exceeding very moderate dimensions, the coarseness of the grain of the larger plates; its liability, when thin, to warp by changes of the weather, and its property of turning yellow by long exposure to the light, owing to the oil which it contains.

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Method of preparing ivory paper.

The method of preparing ivory paper, which combines the excellencies without the defects of ivory, is as follows: Take a quarter of a pound of clean parchment cuttings, and put them into a two-quart pan, with nearly as much water as it will hold; boil the mixture gently for four or five hours, adding water from time to time to supply the place of that driven off by evaporation; then carefully strain the liquor from the dregs through a cloth, and when cold it will form a strong jelly, which may be called size No. 1.

Return the dregs of the preceding process into the pan, fil' up the pan with water, and again boil it as before for four or five hours: then strain off the liquor, and call it size No. 2.

Take three sheets of drawing paper, (outsides will answer the purpose perfectly well, and being much cheaper, are therefore to be preferred) wet them on both sides with a soft sponge dipped in water, and paste them together with the size No. 2. While they are still wet, lay them on a table, and place upon them a smooth slab of writing slate, of a size somewhat smaller than the paper. Turn up the edges of the paper, and paste them on the back of the slate, and then allow the paper to dry gradually. Wet, as before, three more sheets of the same kind of paper, and paste them on the others, one at a time; cut off with a knife what projects beyond the edges of the slate, and when the whole has become perfectly dry, wrap a small flat piece of slate in coarse sand-paper, and with this rubber make the surface of the paper quite even and smooth. Then paste on an inside sheet, which must be quite free from spots or dirt of any kind; cut off the projecting edges as before; and when dry, rub it with fine glass paper, which will produce a perfectly smooth surface. Now take half a pint of the size No. 1, melt it by a gentle heat, and then stir into it three tablespoonfuls of fine plaster of Paris; when the mixture is completed, pour it out on the paper, and with a soft wet sponge distribute it as evenly over the surface as possible. Then allow the surface to dry slowly, and rub it again with fine glass paper. Lastly, take a few spoonfuls of the size No. 1 and mix it with three-fourths its quantity of water; unite the two by a gentle heat, and when the mass has cooled, so as to be in a semi-gelatinous state, pour about one-third of it on the surface of the paper, and spread it evenly with the sponge when this has dried, pour on another portion, and afterwards the remainder: when the whole has again become dry, rub it over lightly with fine glass paper, and the process is completed; it may accordingly be cut away from the slab of slate, and is ready for use.

Method of preparing ivory paper.

The quantity of ingredients above mentioned is sufficient for a piece of paper 17½ inches by 15½ inches.

Plaster of Paris gives a perfectly white surface; oxide of zinc, mixed with plaster of Paris, in the proportion of four parts of the former to three of the latter, gives a tint very nearly resembling ivory; precipitated carbonate of barytes gives a tint intermediate between the two.

The sum of thirty guineas was voted by the Society for the Encouragement of Arts, &c. to S. Einsle, of Strutton-Ground, Westminster, for the communication of his method of making ivory paper, as above described. Specimens of the ivory paper were produced to the Society; they were about the eighth of an inch thick, and of superficial dimensions much larger than the largest ivory: the surface was hard, smooth, and perfectly even. It appeared on a trial of these specimens by some of the artists, members of the Society, that colours may be washed off the ivory paper more completely than from ivory itself, and that the process may be repeated three or four times upon the same surface, without rubbing up the grain of the paper. The ivory paper also, with proper care, will bear to be scraped with the edge of a knife, without becoming rough.

Traces made upon the surface of this paper by a hard black-lead pencil are much easier effaced by means of Indian rubber than from common drawing paper, which circumstance, together with that of the extremely fine lines which its hard and even surface is capable of receiving, peculiarly adapts it to the reception of the most delicate kind of pencil drawings and outlines.

An artist of eminence in miniature painting (not a member of the Society) stated, that he has frequently used the ivory paper, and finds it to be superior to ivory itself in the whiteness of the surface, in the facility with which it receives colour, and in the greater brilliancy of the colours when laid on, owing to the superior whiteness of the ground. Colours on ivory are apt to be injured by the transudation of the animal oil, a defect from which the ivory paper is free.

Some highly respectable dealers in drawing materials stated, that they had had samples of the ivory paper in their possession for a considerable time, and that it did not appear to become yellow or discoloured by keeping.

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Method of making artificial chimney-pieces.

METHOD OF MAKING ARTIFICIAL STONE, AND MOULDING IT AS A SUBSTITUTE FOR PORTLAND-STONE CHIMNEY-PIECES.

Take two bushels of sharp drift sand, and one bushel of sifted slacked quicklime; mix them up together with as little water as possible, and beat them well up together for half an hour every morning, for three or four successive days, but never wet them again after their first mixture.

To two gallons of water, contained in a proper vessel, add one pint of single size, made warm; a quarter of a pound of alum, in powder, is then to be dissolved in warm water, and mixed with the above liquor.

Take about a shovelful of the first composition, make a hole in the middle of it, and put therein three quarters of a pint of the mixture of alum and size, to which add three or four pounds of coarse plaster of Paris; the whole is to be well beaten, and mixed together rather stiff; put this mixture into the wooden moulds of the intended chimney-piece, the sides, ends, and tops of which moulds are to be made of moveable pieces, previously oiled with the following mixture:

Take one pint of the droppings of sweet oil, which costs about one shilling the pint, and add thereto one pint of clear lime-water, made by pouring boiling water on lumps of chalk lime in a close vessel till fully saturated; when the lime-water becomes clear, it is proper to be added to the oil as above-mentioned, and the two fluids, on being stirred together, will form a thick oily mixture or emulsion, proper to apply upon the moulds.

In forming the side or jamb of a chimney-piece, the mould is to be first half filled with the sand-lime and plaster composition; then two wires wrapped round with a thin layer of hemp, and which wires are nearly the length of the piece to be moulded, are to be placed in parallel lines lengthways, in the mixture or composition in the mould, and afterwards the mould is filled up with more of the composition; and if there is any superfluous quantity, it is to be struck off with a piece of flat board.

The lid or top part of the mould is to be then placed upon it, and the whole subjected to a strong pressure from weighted levers or a screw press. The composition is to remain under this pressure for twenty or thirty minutes; the precise time necessary may be known, from examining a small specimen

of the composition reserved purposely to determine the time it requires to harden and set firm.

The sides of the mould are to be held together by iron clamps and wedges.

The wires above mentioned answer a double purpose, by giving strength to the jambs, and retaining the whole mass together in case it should at any time be cracked by accident.

The chimney-pieces may be made either plain or fluted, according to the mould; and when moulded, they are finished off by rubbing them over with alum water, and smoothing them with a trowel and a little wet plaster of Paris.

A common plain chimney-piece of this composition is sold for seven shillings, and a reeded one for twenty-eight shillings, completely fitted up.

Architectural Cement to resist the filtration of Water.

The following cement, invented by Thenard, an eminent French chemist, has been used with great success in covering terraces, lining basins, soldering stones, &c. and it everywhere resists the filtration of water; it is so hard that it scratches iron. It is formed of

93 parts of well-burnt brick or clay.
7 parts litharge and linseed oil.

100

Nothing can be more simple than its composition, or the manner of using it. The brick and litharge are pulverized; the latter must always be reduced to a very fine powder; they are mixed together, and enough of linseed oil is added to the mixture to give it the consistence of thin plaster. It is then applied in the manner of plaster, the body that is to be covered being always previously wetted. This precaution is indispensable, otherwise the oil would filter through the body, and prevent the mastic from acquiring the desirable degree of hardness. When it is extended over a large surface, it sometimes happens to have flaws in it, which must be filled up with a fresh quantity of the cement. In three or four days it becomes firm.

A FIRE-PROOF AND WATER-PROOF CEMENT.

To half a pint of milk put an equal quantity of vinegar, in order to curdle it; then separate the curd from the whey, and mix the whey with the whites of four or five eggs, beating the whole well together. When it is well mixed, add a little quick lime through a sieve, until it has acquired the consistence of a thick paste.

With this cement, broken vessels and cracks of all kinds may be mended; it dries quickly, and resists the action of water, and of fire applied to vessels containing water.

A *Cement withstanding Sulphuric Acid,* will be found at page 788.

METHOD OF PREPARING THE CELEBRATED CHUNAM OF INDIA, AS PRACTISED AT MADRAS.

Take 15 bushels of pit sand, and 15 bushels of stone-lime; slake the lime with water; and when it has fallen to powder, mix the two ingredients together, and let them remain untouched for three days. In the mean time dissolve 20lbs. of molasses in water, boil a peck of gramm (a kind of pea) to a jelly, boil a peck of mirabolans also to a jelly, mix the three liquors, and incorporate part of the mixture very accurately with the lime and sand, so as to make a very fluid cement: some short tow is now to be beaten very well into it, and it is then fit for use. The bricks are to be bedded in as thin a layer as possible of this mortar; and when the workmen leave off, though but for an hour, the part where they recommence working is to be well moistened with some of the above liquor before the application of any fresh mortar. When this is used for stucco, the white of four or five eggs, four ounces of butter or sesamum oil, and a pint of buttermilk, are to be mixed up with every half bushel of cement, and the composition is to be applied immediately.

On the value of salt as a manure.

A Varnish for Metals resisting the combined action of air and acid Vapours.

Lampadius, professor of chemistry at Freyberg in Saxony, having remarked that the sulphurous and acid vapours which rise from the furnaces for smelting ores, destroy in a short time the ordinary varnishes, and attack the metals used in the construction of buildings, studied to discover a coating which would resist their action. As it was necessary to oppose to the acids, a matter which they could not dissolve, he tried the metallic oxides of lead and zinc, when saturated with sulphuric acid. These oxides, from their desiccative quality, are well adapted to the composition of varnish, and are easily obtained. Sulphate of lead is prepared by mixing a solution of four ounces of acetate of lead in twelve ounces of water, with a solution of seven ounces of sulphate of soda in fourteen ounces of water. The precipitate obtained by this mixture is sulphate of lead, which is to be filtered, edulcorated, and dried. Sulphate of zinc is sold by chemists and druggists under the name of white vitriol of zinc.

The method of preparing the varnish is as follows: Reduce to an impalpable powder one ounce of plumbago, with which mix four ounces of sulphate of lead, and one ounce of sulphate of zinc, and add to it by degrees, one pound of varnish, prepared with linseed oil, previously heated to ebullition. This varnish dries quickly, and perfectly preserves from oxidation the metals coated with it. It has been employed with success to cover lightning conductors, and, after a trial of many years, has been found to answer equally well for roofs covered with lead, iron, copper, or zinc, which are continually exposed to the action of damp and of acid vapours.

Account of Experiments on the utility of Salt as a Manure, and as a Condiment mixed with the food of Animals.*

On the value of salt as a manure the public opinion has been much divided; the advocates for the use of salt, reasoning

* For this Essay, Dr. Edmund Cartwright of Woburn received the Gold Medal of the Board of Agriculture.

On the value of salt as a manure.

from the striking effects of salt-water on the marshes, which are occasionally irrigated by the sea at spring-tides, conclude that the fertilizing virtue of such irrigation is owing to its saline quality, without taking into consideration the quantity of animal and vegetable matter which sea-water (particularly near the coast, and where rivers disembogue themselves,) must necessarily hold in solution.

To determine the question, a soil* was selected well calculated to give impartial results, from its containing no ingredient (a small portion of oxide of iron excepted—about 7 grains in 400 of the soil) of sufficient activity to augment or restrain the peculiar energies of the substances employed. A certain portion of this soil was laid out in beds one yard wide and forty long. The beds were planted with potatoes, a single row in each bed, and the same number of sets in each. To one bed no manure was used, to ten other beds a single different manure, and to other fourteen beds, the manures were mostly compounded of these. Of the single manures, the quantity used of each was,

Of Salt, a quarter of a peck,
Lime, one bushel,
Soot, one peck,
Wood-ashes, two pecks,
Saw-dust, three bushels,
Malt-dust, two pecks,
Peat, three bushels,
Decayed leaves, three bushels,
Fresh dung, three bushels,
Chandlers' graves, nine pounds.

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* The soil was a ferruginous sand, which had been brought to a due texture and consistence by a liberal covering of pond mud:

	grains
400 grains gave of siliceous sand of different degrees of fineness, about	280
Of finely divided matter, like clay	104
Loss in water	16
	400

	grains
The 104 grains of finely divided matter contained of carbonate of lime	18
Of oxide of iron	7
Loss by incineration, most probably from the decomposition of vegetable matter	17

The remainder principally silex and alumine.

On the value of salt as a manure.

When these manures were mixed, the quantity of each ingredient was the same as when used singly. The potatoes were planted on the 14th of April, 1804; on the 21st of September following they were taken up, and the produce of each row was in succession as follows:

Salt and soot produced	240
Chandlers' graves	220
Salt, wood ashes	217
Salt, gypsum, peat, lime	201
Salt, lime, dung	199
Salt	198
Salt, graves	195
Soot	192
Fresh Dung	192
Salt, malt-dust	189
Wood ashes	187
Salt, decayed leaves	187
Salt, peat ashes	185
Malt-dust	184
Salt, lime, peat	183
Salt, saw-dust	180
Salt, peat, bone-dust	178
Decayed leaves	175
Salt, lime, sulphuric acid	175
Salt, peat	171
Salt, lime	167
Peat	159
No manure	157
Saw-dust	155
Lime	150

The foregoing table furnishes many particulars worthy of observation. In the first place, it is remarkable, that of 10 different manures, most of which are of known and acknowledged efficacy, salt is superior to them all, one only excepted. And again, when used in combination with other substances, it is only unsuccessfully applied in union with one, viz. chandlers' graves, no other manure seemingly being injured by it. Possibly its deteriorating effects on chandlers' graves may be owing to its antiseptic property, which retards the putrefactive process by which animal substances undergo the changes necessary to qualify them to become the food of plants.

The extraordinary effects of salt, when combined with soot, may not be owing to any known chemical agency of these sub-

stances on each other, but is perhaps attributable to the property of saline substances by which they attract moisture from the atmosphere. Those beds where salt had been used were visibly and palpably moister than the rest, even for weeks after the salt had been applied; and this appearance continued till rain fell, when of course the distinction ceased. This property of attracting moisture, had greater influence possibly on the soot than on any of the other manures, as soot, from its acrid and dry nature, may be supposed to require a greater proportion of water to dilute it than those substances which contain water already. On those beds where salt had been used, the plants were obviously of a paler green, though not less luxuriant. It was observable also, that where salt was applied, whether by itself or in combination, the roots were free from that scabbiness which oftentimes infects potatoes, and from which none of the other beds, (and there were in the field nearly forty more than what made part of these experiments) were altogether exempt.

From two sets of experiments made on a very poor soil, it appeared that a due texture and consistence in the soil is as necessary to the health and existence of vegetables as the pabulum by which they are sustained; those manures being the most efficacious, which, in the soil employed, contributed to produce this texture and consistence.

As a condiment, the effects of salt were tried upon hogs, about a quarter of a pound per day being mixed with their food. It did not appear that the salt had any operation, either in promoting thirst or stimulating their appetites, the consumption of food being nearly the same whether salted or not, neither does it appear that the salt had any influence on their fattening. The author observes, *en passant*, that for most of the internal disorders to which hogs are liable (and they may all be supposed to be more or less accompanied with fever) he has found no remedy so efficacious as antimony, in the form of emetic tar; from 5 to 40 or 50 grains may be given, according to the age and strength of the animal, and probably larger doses may be perfectly safe.

In trying the effect of salt upon cows, these animals had salt mixed with their hay, which was first slightly moistened with water, and then sprinkled with salt, of which they consumed about half a pound per day. While they were thus supplied with salt, they drank about three gallons per day more than at other times, and they gave rather more milk; but when the increased quantity of milk is balanced against the price of the salt, the dairyman will find himself no gainer.

On the efficacy of burnt clay as a manure.

As most if not all graminivorous animals, whether wild or domesticated, are known to eat salt with avidity, whenever it comes in their way, it is reasonable to suppose that the propensity has not been implanted in them in vain. Perhaps the use of salt will be found beneficial principally in contributing to the health of animals by aiding their digestion.

On the efficacy of Burnt Clay as a Manure, and an economical Method of burning large Quantities of Clay.

The following account of the efficacy of burnt clay as a manure, and of the method of burning it, is by the same author as the one of which we have last given a summary. It was rewarded by the gold medal of the Society for the Encouragement of Arts, &c.; and developes a system of agricultural management, which to many extensive districts will be of so much consequence, that it cannot be too generally known.

For some years past, says Dr. Cartwright, I have been in the practice of using soot and wood-ashes, as top-dressings, but never to much extent, from the difficulty of procuring them in any considerable quantity. In the spring of this year, (1819,) I was enabled to obtain soot to top-dress between five and six acres; part pasture and part arable, after the rate of 50 bushels per acre; and wood-ashes sufficient for the same quantity of ground, after the rate of 100 bushels per acre. The prime cost of the soot was 9d. per bushel; but as I had to fetch it from some distance, I calculate the price of it, when brought home, at 1s. per bushel. The wood-ashes were 4½d. per bushel; but as they lay nearer home, I reckon the carriage at 1½d. per bushel. The expense, therefore, of top-dressing, with each of these articles, was the same, namely £2. 10s. per acre. The object of my experiment this year was, to compare burnt clay, soot, and wood-ashes.

With burnt clay I top-dressed about seven acres, after the rate of 20 cart-loads per acre, each cart-load being about 20 bushels. I must here observe, that when I first began the burning of clay, I found it a very difficult and expensive business, but I have latterly contrived a method of performing the operation at a very cheap rate. It does not now cost me more than 9d. per cart-load, fuel included, provided the weather is not unfavourable; so that the expense of this manure does not exceed 15s. per acre.

On the efficacy of burnt clay as a manure.

The soil on which these top-dressings were applied, was a cold, wet, tenacious clay. The crops on which they were tried were Swedish turnips, the common turnip, kohlrabi, turnip-rooted cabbage, potatoes, mangel-wurzel, barley, and beans.

On the 15th September, I measured off 50 square yards of Swedish turnips, under each top-dressing, and 50 square yards which had not been top-dressed. Their respective weights were as follows:

	lb.		ton.	cwt.	lb.
Burnt clay,	580	per acre	25	2	20
Soot,	546		23	12	2
Wood-ashes,	398		16	12	52
No top-dressing,	235		10	3	12

Taking the value of the turnips at only 5s. per ton, (and they certainly are worth more,) the burnt clay exceeds the soot in value of crop per acre 7s. 6d. by saving in prime cost £1. 15s. total £2. 2s. 6d. The superiority of burned clay over wood-ashes is nearly 8½d. to the value of which, if the saving in prime cost is added, the superiority will be £3. 17s. 6d.

The superiority of burnt clay over that which had no top-dressing, will, in money (deducting the expense of burning the clay) be £4. 7s. 6d.

I must here observe, that the great disparity between the turnips which were top-dressed, and those which were not, must not be attributed altogether to the fertilizing properties of the substances employed, but in a considerable degree to the protection they afforded the young plants from the depredation of the fly. This will appear by the subsequent experiments on the kohlrabi and the common turnip. The kohlrabi plants, destroyed by the fly, were replaced from a seed-bed. As the transplanting was performed in a showery time, none of them failed. The common turnip was sown during the same favourable weather, and escaped the fly altogether.

On the 7th of October, I measured off 50 square yards of potatoes, top-dressed with burnt clay, &c. The results were as follows:

	bush.	pecks.		bush.
Burnt clay,	5	0	per acre,	480
Soot,	4	3		456
Wood-ashes,	4	2		432
No top-dressing,	4	0		340

On the efficacy of burnt clay as a manure.

On the 4th of November, the results of similar experiments on kohlrabi, were as follows:

	lb.		ton.	cwt.	lb.
Burnt clay, - -	160	per acre - -	6	17	26
Soot, - - - -	138	- - - - -	3	18	32
Wood-ashes, - -	114	- - - - -	4	17	30
No top-dressing,	93	- - - - -	4	7	48

In my experiments on Reynold's turnip-rooted cabbage, and on mangel-wurzel, I was completely defeated: of the former I had the seed by me for many years, and it had outlived its power of vegetating, and the mangel-wurzel had never acquired that power, the cold wet season of last summer not suffering it to ripen.

Having only half an acre of barley, I divided it into four equal parts. Not having conveniency in my small barn to keep the produce of each by itself, I kept an account of the number of sheaves that each part produced. When the whole was threshed out, I divided the grain that it yielded, which amounted to two quarters, into four parts, proportionate to the number of sheaves reaped from each division.

	sheaves.		bush. pecks.			qr. bush.	
Burnt clay, -	126	- - -	4	2	per acre - - -	4	4
Soot, - - -	121	more than	4	1	rather more than	4	2
Wood-ashes,	117	less than	4	1	rather less than	4	2
No top-dressing	84	- - -	3	0	- - - - -	3	0

It must be observed, that the barley was sown in alternate rows with beans, so that, in fact, the space occupied by the barley ought not to be reckoned more than a quarter of an acre, as one-half of the ground produced a crop of beans. Of the result of the experiment on the beans, I am not able to speak, as when put into the barn, they accidentally got mixed with others.

November 7th. The result of the experiment with common turnip was as follows:

	lb.		ton.	cwt.	lb.
Burnt clay, - -	296	per acre, - -	6	7	54
Soot, - - - -	292	- - - - -	6	5	36
Wood-ashes, - -	293	- - - - -	6	5	36
No top-dressing,	276	- - - - -	5	16	76

On the efficacy of burnt clay as a manure.

Why the result of this last experiment should vary so much from the preceding ones, I am at a loss to conjecture. Had I not paid the most minute personal attention to every individual part of the experiments, from their commencement to the final measuring off and weighing the produce, I might suspect, indeed, that my directions had been deviated from or neglected, but as this could not possibly have been the case, the result of this last experiment must be set down as one of the many ano malies that are perpetually arising to baffle human ingenuity.*

Of the experiments on grass land, I had no convenient way of judging, but by the eye. As far as the eye could decide, the burnt clay was, without question, the superior; and the soot, as in all the other experiments except the last, was evidently more powerful than the wood-ashes. It is singular, that in the neighbourhood where I reside, (near Tunbridge) the farmers hold soot in very light estimation, but have a very high opinion of wood-ashes; an opinion which these experiments may tend to rectify. Burnt clay, it will clearly appear by these diversified experiments, has the most decided advantage over the other two substances in every respect: its immediate effect is greater, its original cost is less, and in durability it admits not of a comparison. It is universally admitted, that wherever burnt clay has been applied on a cold, wet, adhesive soil, it makes an immediate alteration in the texture of it, rendering it dry and friable, so as to admit of its being worked at almost all seasons. I gave a dressing of burnt clay to a small piece of ground, between seven and eight years ago, the effect of which is visible to this day, and probably will be for some years to come.

Burnt clay has been used as manure in Ireland with the greatest success for at least a century past; has been introduced into Scotland with equal advantage within the last ten years; and it is now beginning to get footing in England, where this exposition of facts, in proof of its utility, will, it is hoped, accelerate its adoption. As soon as its use is univer sally established, we may date a new, and indeed, a brilliant era in the history and progress of British husbandry. This is not said at random, but from a confident persuasion, in which the opinions of some of our best agriculturists will bear me out, that the judicious application of burnt clay, on soils to which it is adapted, will in a few years double their present value.

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* Dr. Cartwright had afterwards reason to suppose that the anomaly which so much surprised him, was in consequence of the thinning the crop received from the depredations of gipseys or other vagabonds.

On the efficacy of burnt clay as a manure.

When I first began to burn clay, which is now three years ago, I followed such printed directions as I met with in different publications on the subject. I never, however, was able to accomplish my object but at an expense greater than what I could have purchased stable manure for. I determined, therefore, to try if I could not burn it at a cheaper rate.—After a variety of experiments, which it would be useless to detail, I adopted the following method:—I had a trench made, about 20 feet long, three feet deep, and as many wide, with sufficient fall for taking off the water. At the upper end of the trench, and resting on its sides, a brick arch was turned, about 9 or 10 feet long, having openings for letting the fire through to the clay. These openings were made by leaving out half a brick at proper intervals. In the front of the arch is a strong wall two bricks thick, which has its foundation in the bottom of the trench. This wall, which is two feet wider than the arch, rises about a foot above it, through which there is a mouth to the arch about two feet wide. The whole erection will not require above 5 or 600 bricks, and no lime, except for the front wall. The arch will be best laid in loam or puddle of any kind.

In setting the kiln, care should be taken, especially at the commencement of the business, to lay the sods, or lumps of clay, hollow, that the fire may draw through freely, When the pile is about two feet thick upon the arch, the fire should be lighted, and a sod wall made round the kiln, which may extend about 2 feet wider than the arch, which will be supported in front of the brick wall. The sod wall will not be above 3 or 4 feet high. As the ignition proceeds, fresh clay must be added, still letting it lie as hollow as conveniently may be. When the heap is between four and five feet high, and burned through, the fire may be suffered to die out. Clay, however, may still be added for a day longer at least, and the more crumbly part of the clay may now be used. Two men, at 2s. 6d. per day, and a boy at 6d. per day to attend the fire, in 2½ days burned 35 good cart loads, the fuel consumed was 175 furze faggots at 5s. per hundred; the expense therefore stands thus:

Labour, - - - - - - - - - - - - - - - -	£0	14	0
Fuel, - - - - - - - - - - - - - - - -	0	8	9
To which may be added a donkey and cart two days,	0	3	0
	£1	5	9

I need not observe, that the divisions of the arch, &c. are merely arbitrary. My farm being a very small one, small kilns

answer my purpose. I mean to have two, that one may be at work while the other is cooling. I may further observe, that the consumption of fuel will of course be regulated by the state of the weather. Those who do not chuse to go to the expense of a brick or stone arch, may make one of sod or spits of clay, (but in this case they must be perfectly dry, or else they will not support the superincumbent weight.) The centre for this kind of arch is thus made:—Lay four or five strong stakes across the trench, and upon these lay faggots, in a circular form, to build the arch upon. When the work is finished, the centre of faggots is set fire to. Though a trifling expense is thus saved in the first instance, a brick or stone arch will be found in the end cheaper, as the sod or clay arch must be renewed every time.

Method of purifying Corn, when tainted with Must.

The following very simple and efficacious mode of purifying corn tainted with must, was discovered by Charles Hatchett, F. R. S.

Put the wheat into any convenient vessel capable of containing at least three times the quantity, and the vessel must subsequently be filled with boiling water; the grain should then be occasionally stirred, and the hollow and decayed grains (which will float) may be removed. When the water has become cold, or in general when about half an hour has elapsed, it is to be drawn off. It will be proper then to rinse the corn with cold water, in order to remove any portion of the water, which had taken up the must; after which, the corn being completely drained, is without loss of time to be thinly spread on the floor of a kiln, and thoroughly dried, care being taken to stir and turn it frequently during this part of the process.

New Method of making Bread.

New flour which has not been perfectly harvested, will not it is well known, make light and wholesome bread. For this defect, an eminent chemist, Edmund Davy, of Cork, has dis-

covered a corrective, which promises, after unfavourable seasons particularly, to be of great importance. It consists in mixing intimately with each pound of the flour, from twenty to forty grains of the carbonate of magnesia of the shops. Not the slightest danger can be apprehended from the use of such an innocent substance as carbonate of magnesia in the small proportion requisite for this purpose, and it produces a very remarkable effect in improving the lightness and taste of the bread.

On burning Lime with Peat.

From a communication by —— Dodgson, of Grahamonset, in Cumberland, to the Board of Agriculture, it appears that the quickness of the process of burning lime with peat is surprising, for in twelve hours after putting fire to the kiln, the lime is ready to draw: in burning with coal, none can be drawn for two or three days; and nearly double the quantity of lime is produced every succeeding day that can be with the use of coal, owing to the peat keeping the limestone in an open porous state, and admitting a brisk circulation of the air. For the same reason, the limestone cannot be run into a solid lump, by excessive heat, as sometimes happens with coal. Peat only half dry, will burn lime as well as when thoroughly dry, only the process of burning is a little slower.

On the Prevention of the Dry Rot in Timber.

Gavin Inglis, in some observations on the prevention of dry rot. concurs in opinion with others who have recently published the results of their experience on the subject, that timber, especially for ship-building, ought never to be cut till after the fall of the leaf, when it contains the least sap and moisture. He further observes, that in examining masses of oak, dug from the alluvial strata of the country, where it has lain for ages, many of them are found fresh and sound as they could have been on the day they were overthrown. In these cases, the timber is uniformly as black as ebony, and obdurately hard. Having been led from curiosity to examine chemically several of these

New methods of making single microscopes of glass.

old trunks, he found them to contain a far greater proportion of iron than could be supposed to have existed in the natural state of the tree. To this extraneous iron may be attributed the incorruptibility of antediluvian timber; and it must have been supplied by the ore of the soil, or from chalybeate waters; in this state of solution, it would penetrate the substance of the wood, unite with the astringent principle, and produce not only the black colour, but such a density of texture as almost to resist the sharpest instrument. The same means will season new timber, and render it proof against dry rot, that will cure old; namely, the application of iron in a state of solution. This can be obtained, at a comparatively small expense, from a solution of sulphate of iron (green copperas) in which the wood must be soaked till it has acquired the colour of new ink. This would completely counteract every vegetable principle, and communicate durability and firmness of texture, with the additional advantage, that the sulphur of the solution, penetrating the substance of the plank, would defend it from the ravages of insects.

New Methods of making single Microscopes of Glass.

The following methods of making single microscopes of glass, are the invention of Thomas Sivright, F. R. S. E.

Take a piece of platinum leaf, about the thickness of tinfoil, and make two or three circular holes in it, from one-twentieth to one-tenth of an inch in diameter, and at the distance of half an inch from each other. In the holes put pieces of glass, which will stick in them without falling through, and which are thick enough to fill the apertures. When the glass is melted at the flame of a candle with the blowpipe, it forms a lens which adheres strongly to the metal, and the lens is therefore formed and set at the same time. The pieces of glass used for this purpose should have no mark of a diamond or file upon them, as the mark always remains, however strongly they are heated with the blowpipe. An eye or loop, made by bending the extremity of a platinum wire, may be used instead of platinum leaf.

The lenses which were made larger than one-tenth of an inch were not so good as the rest, and the best were even of a smaller size than one-tenth. They are produced with great facility, and it is advisable to make a greater number than may be required, selecting only the best to be kept for use.

Indelible and incorruptible writing inks.

Platinum is infusible at the heat required for the perfect fusion of glass; it may therefore be used very thin for this purpose; and as it does not oxidate, the glass adheres firmly to it.

Plano-convex lenses may be obtained by fusing with a strong heat, a fragment of glass resting upon a polished plane of topaz, obtained by the fracture of that stone. A blowpipe urged by common air only is required; one supplied with oxygen gas would act upon the topaz.

Indelible Ink for marking Linen

The purple precipitate of Cassius (see page 367 of this vol.) is used in Italy as an indelible ink, which is recommended as much superior to that of silver. That part of the linen on which the writing is to be, must first be moistened with a solution of recently made muriate of tin, and when dry the writing is to be done with a solution of gold, and then washed in water. The writing, which will become black, is not at all affected by washing, and with great difficulty by other agents, and not before the cloth is destroyed.

Method of preparing incorruptible Writing Ink.

The following directions for preparing incorruptible writing ink, are given by Van Mons, an eminent foreign chemist, and the discovery is certainly one of very considerable merit. I have succeeded, says he, in depriving ink of its principle of corruption, by infusing the gall-nuts in common beer vinegar. They are to be broken into coarse powder, and infused for two or three days in a retort closed with a piece of paper. The infusion is then passed through a woollen sieve; the residue washed in cold water, decanting all that remains suspended in the water; the latter portion is then to be infused in the same manner in pure water, and both infusions are to be mixed. The whole is to be heated for an instant, and then allowed to subside for twenty-four hours, when it is to be filtered again; gum and sugar are then to be added, and when they are dissolved, the whole is to be once more passed through the sieve.

The ink is then to be mixed with the oxide or red sulphate, but neither the acidulated nor oxidulated sulphate ought to be used. The whole being shaken, may be put into a stone-bottle, and corked with a paper stopper.

Not only is the ink thus obtained prevented from corrupting, but it loses another bad property, namely, that of thickening. The acid of the vinegar is combined as a mucous kind of acetate, with the mucilaginous matter, and precipitates it; the vinegar is very much softened in this infusion by the connexion which its acid parts form with the mucus. The thickening of the ink arises from the sulphuric acid rendered free, precipitating this body. The mucus of the gum arabic scarcely undergoes this change at all.

For the proportions of the ingredients in writing ink, and other particulars not mentioned in this general account, we refer to page 781 of this volume.

Yellow Sympathetic Ink.

At page 784 of this volume, we have given some of the best processes for preparing what are fancifully denominated sympathetic inks: the present article will make a curious addition to the number.

Dissolve an ounce of sulphate of copper, and another of muriate of ammonia, in six ounces of water, diluting the solution gradually with more water, till it ceases to leave a visible trace upon paper after having been suffered to dry.

Writing executed with this ink is invisible when dry, but appears of a beautiful yellow by heating the paper, and disappears when the paper is cold.

Ignited Wire Lamp.

Sir Humphrey Davy, in the course of his admirable researches on flame, discovered a peculiar state of combustion at a heat below that of flame.

A coil of platinum wire, about one hundredth part of an inch in thickness, and containing from eight to fifteen or sixteen turns, is dropped on to the wick of a spirit lamp, so that

part touches the wick, and part remains supported above. On blowing out the flame of the lamp, after it has been lighted, the wire will remain ignited, and continue so as long as any spirit remains below.

It has been ascertained that camphor may be substituted for the alcohol, by introducing a cylinder of it in place of the wick; the ignition is very bright, and a pleasant odorous vapour arises from it.

Spirit of turpentine in the lamp also succeeds. The wire does not remain ignited; but the continuance of the effect is marked by the ascent of a dense line of vapour, which rises from the wire, and diffuses an odour by some thought agreeable.

Effects of Vapour on Flame.

J. F. Dana, chemical assistant in Harvard university, and lecturer on chemistry and pharmacy in Dartmouth college, has published in Professor Sillman's journal an essay on the effects of vapour on flame, affording hints well deserving the notice of practical men.

When a jet of steam issuing from a small aperture, is thrown on burning charcoal, the brightness is increased, if the coal be held at the distance of four or five inches from the pipe through which the steam passes; but if the coal be held nearer, it is extinguished; a circular black spot first appears where the steam is thrown on it. The steam in this case does not appear to be decomposed, and the increased brightness of the coal depends probably on a current of atmospheric air, occasioned by the steam. But when a jet of steam, instead of being thrown on a single coal, is made to pass through a charcoal fire, the vividness of the combustion is increased, and the low attenuated flame of coal is enlarged.

When the wick of a common oil lamp is raised, so as to give off large columns of smoke, and a jet of steam is thrown into it, the brightness of the flame is increased, and no smoke is thrown off.

When spirit of turpentine is made to burn on a wick, the light produced is dull and reddish, and a large quantity of thick smoke is given off; but when a jet of steam is thrown into this flame, its brightness is much increased; and when the experiment is carefully performed, the smoke entirely

disappears. When the vapour of spirits of turpentine is made to issue from a small orifice, and inflamed, it burns, and throws off large quantities of smoke; but when a jet of steam is made to unite with the vapour, the smoke entirely disappears. When vapour of spirit of turpentine and of water are made to issue together from the same orifice, and inflamed, no smoke appears. Hence its disappearing, in the above experiment, cannot be supposed to depend upon a current of atmospheric air.

When a jet of steam is thrown into the flame of a spirit-of-wine lamp, or into flames which evolve no smoke or carbonaceous matter, the same effect is produced as by a current of air.

It appears from these experiments, that in all flames which evolve smoke, steam produces an increased brightness. Now, with a very simple apparatus, steam might be introduced into the flames of street lamps, and into all flames which evolve much smoke. The advantage of such an arrangement would be, a more perfect combustion, and a greater quantity of light from the same materials. The flame of the lamps to which steam is applied might be made to keep the water boiling which supplies the steam.

Method of preserving Vegetable Remedies.

Let the fresh herb, intended to be preserved, be collected free from dew, and having rubbed the leaves into the finest pulp, let them be formed into a moderately consistent mass, by the addition and careful intermixture of white sugar, or dried soap. In this manner the vegetable may be long preserved, and the advantages are obtained of administering it throughout the year in its pristine state, and without previously subjecting it to any operation, or to the agency of any substance by which its properties may be enfeebled or destroyed. This process is proposed by Dr. Marshall Hall, who has successfully applied it to the preservation of the plants,—digitalis, cicuta, hyoscyamus, &c.

of the plate will resemble the original: but if the contrary be desired, it is only necessary to trace upon the right side of the transparent paper. The etching needle must now be used, and lines to form the outlines and shades must be traced with it, either by hand or with the assistance of compasses and parallel ruler, as the case requires; taking care to use different needles, according to the fineness or strength of the strokes required.

Oval-pointed needles are the most proper for strong strokes. The needle should be held as nearly upright as possible.

The varnish raised by the needle, to prevent its stopping up the lines in any part, should frequently be removed from the plate with a large camel's hair pencil. The whole design being completed, the plate is ready for biting.

Of Biting and Rebiting.

Previous to the use of the acid, the plate should be examined, and if any improper strokes have been made, or if the ground be any where broken up, a composition called the stopping mixture, must be immediately applied to it. This is formed of turpentine-varnish and lamp-black. It may be applied to the ground with a camel's hair pencil, and will, when dry, answer the same purpose as the original ground, either for tracing upon with the needle, or wholly to resist the acid: but when turpentine varnish is intended to be traced upon with the needle, it should only just be suffered to dry till it has lost its adhesiveness; as in the course of time it becomes brittle, and under the needle flies from the copper in flakes.

The design being complete, the plate is surrounded with a border or wall, about an inch high, composed of bees' wax, softened by the addition of one third of tallow. The common nitric acid of the chemists, diluted with something more than an equal quantity of water, is now poured upon the plate, to the depth of about half an inch. The acid will speedily begin to act upon the copper, where it has been laid bare by the strokes of the needle, and bubbles will immediately rise to the surface. These must be cleared away with a feather, as fast as they appear, and also such as are observed to adhere in the strokes.

When the faintest parts of the design are supposed to be sufficiently bitten, the nitric acid is poured off by a spout left for that purpose at one corner of the border, and only slightly stopped with a separate piece of wax. The plate is washed with water, and all the parts supposed to be sufficiently bitten,

are, when dry, covered with the stopping mixture already mentioned. The spout is now filled up, the acid poured on again, and the same operation repeated till all the shades are sufficiently bitten. The plate, after being washed, is then heated, and some olive oil being poured upon it, the ground is wholly removed with a linen rag, and the plate made clean with the oil-rubber. The dirt which remains in the lines may be washed out with spirits of turpentine.

No precise direction can be given for the length of time which the acid must remain upon the plate, and the real depth of the biting cannot be known, by examining a plate while the varnish is on it. From half an hour to an hour is the usual time for fine work, but for large designs of bold character, the trunks of trees, dark foregrounds, and other parts to be expressed with similar force, a day or even several days must be employed in successive operations of biting. The effect of the acid must be ascertained by scraping off a small part of the ground, to examine the plate; or by using a spare piece of plate, upon which a ground is laid, and lines drawn similar to those on the true plate, and trying what time the acid to be used requires for producing the effect desired. It is, however, to be observed, that the same acid will have different effects on the same copper, in seasons of different temperature, its its power being weakened by cold; and even so slight a circumstance as that of the sky becoming overcast and gloomy during the operation of biting, will retard the action of the acid.

When the ground is entirely cleared away, and any part is observed to be over-bitten, it may be corrected by rubbing it with the burnisher, if it be slight; but if the excess of biting be considerable, the copper must be rubbed down with charcoal.

When any part of the plate is materially too faint, it may be rebitten, but this is a very delicate and hazardous operation. A little of the etching ground being melted on a spare piece of copper, it may be taken up by the dabber, and dabbed upon the part to be rebitten in such a manner that it may not enter the former strokes, but merely adhere to the uncut part of the copper. The part is then surrounded with wax, and the acid used in the customary manner. The strokes to be rebitten, must, before the ground is again applied, be entirely cleansed from any foulness, by the use of spirits of turpentine, and afterwards rubbing the plate with the crumb of bread.

The art of etching in its infancy was considered as a spurious kind of engraving, and those who adopted it, from the facility

with which it was performed, were anxious to conceal their use of it, and to give their work as much as possible the appearance of having been executed with the graver. Hence they used the hard ground or varnish, as it produced the sharpest lines, and was best adapted to their purpose. But when the peculiar excellencies of the two arts were ascertained, etching was better appreciated; this concealment was nor longer necessary, and therefore the common ground, for general use, has entirely superseded the hard ground, because it admits of so much more freedom in the use of the needle.

Etching is peculiarly adapted to the expression of all objects which are termed picturesque, such as ancient buildings, cottages, rocks, uneven ground, trees, and verdure in general. This arises from the freedom with which the lines forming these objects may be drawn with the needle, which may be used in the same manner as a black-lead pencil, and also from a certain agreeable roughness left in the strokes when the acid is allowed to bite freely. But etching has also the apparently opposite property of being well adapted to smooth flat surfaces of every description. This arises from the uniform action of the acid in biting the strokes in every part alike; a property in which it can never be rivalled by the graver.

It has been mentioned, that plates professed to be done with the tool, are scarcely ever executed without some assistance from etching; it may be added, that the copperplates professed to be etched are scarcely ever committed to the press without some touches of the graver and dry point. The two arts mutually and essentially assist each other.

Here we must mention, as one of the most signal improvements which has been made in the art of etching, since its first discovery, the use of machinery to draw the lines upon the etching ground. All kinds of mathematical and mechanical designs consist almost entirely of straight lines and regular curves, the whole of which can be drawn by machinery, with a precision that the eye and hand can never equal. Lowry appears to have been the first who used machines in this way, and his performances are truly admirable. Machines for ruling equidistant lines, both straight and waved, are now commonly made in London; they consist of a straight bar of brass or steel, upon which slides a socket with a steady but easy motion. To the side of the socket is fitted a perpendicular tube, which receives a steel wire, or any other hard substance, called the pen. This pen has a point like an etching needle, and it is pressed down by the action of a spring. If then a copperplate, covered with the etching ground, be placed under the

ruler, which should be supported at each end, and raised about an inch above it, the point of the pen may be caused to reach it; and if the socket to which the pen is attached, be drawn along the bar, it will form a straight line upon the plate, more even, but in other respects the same as if that line had been drawn by hand with a ruler. Now if the plate or the ruler, after a line is drawn, be moved backwards or forwards, in a direction parallel to this first line, any number of lines may be drawn in the same manner, and a design consisting only of straight lines might be entirely completed. In the machines, therefore, a very exact screw, acting upon a box confined by a slide and connected with the bar, or the board upon which the plate rests, produces the requisite motion; and a contrivance or index is used to measure the exact portion of a turn required, before any stroke is drawn. Such is the principle of the machines most generally used; those for drawing curves, are adapted to the wants of particular engravers, and have hitherto been made under their own inspection. One remark, however, applies to them all; the point or pen employed, should not be made of steel, which, however well tempered, will require frequent wetting, and must therefore inevitably draw strokes deficient in perfect uniformity. The pen should have a diamond point, which, when once properly figured, remains constantly the same, and imparts an admirable degree of regularity and sweetness to the work: a diamond point has the further advantage, that the etching ground never adheres to it, as it does to steel.

As copper, though the most suitable of all the metals for engraving, wears very fast under the action of cleaning, which it requires for each impression taken from it, many attempts have been made to secure the durability of etchings by using glass instead of copper; for if glass be coated with wax, it may be etched by the same process as copper, using only fluoric acid instead of the nitric. The surface of glass would bear cleansing, without injury, incomparably longer than copper, if it could be made to sustain the pressure of the rolling press: this has been attempted, by bedding the plate of glass in plaster of Paris, but it is still so liable to sudden destruction as to prevent its being adopted.

OF ENGRAVING IN CHALK.

This mode of engraving is intended to imitate crayon drawings. It produces this effect by dots made near each other. It has of late years been much employed, and when carefully executed has a soft and pleasing effect.

The copperplate is prepared, and the ground laid upon it, in the same manner as for etching. In the tracing also of the design upon the ground, no difference occurs; but afterwards, in using the needle, no continued lines must be made either for the outlines or any other part, but dots only. The dots must be small in proportion as the work is intended to have a fine and smooth appearance; and their nearness to each other must be increased or diminished according to the depth or lightness of the shade required. Sometimes the dots are uniformly spread; in other examples they are disposed in lines, of two or three dots broad, with white spaces between, to imitate the separate strokes of a crayon. Both these styles may be introduced into the same piece, with the best effect. The dots frequently running into each other, is no disadvantage.

After the nitric acid has remained upon the plate a sufficient length of time for the lightest shades, it must be poured off, and those shades must be stopped with turpentine-varnish. The other shades are then stopped in succession, as in common etching; and if, after the ground has been removed, and an impression taken, any part is found to be too light, it may be rebitten, by a careful attention to the directions already given for that process.

After all the parts which require the least precision have been executed by etching, a considerable proportion of the labour of the best engravings in chalk still remains to be produced by the tool. To use the graver for making dots, it is the most convenient to reverse its situation in the handle, so that the angle which is undermost in the common mode of using it, will be uppermost, and it will then make the impression required upon the plate, while held in a much less inclined position than usual.

To diminish the labour of forming dots, small wheels with one or more rows of teeth in them, have been used; the effect produced by machines of this kind is deficient in precision and freedom, although they may be used in large works.

Engraving in chalk is well adapted to the human figure,

and also for flowers. It is a tedious operation, but requires labour rather than genius.

OF AQUATINTA.

An impression from an engraving in aquatinta resembles a drawing executed in Indian ink. Its appearance is soft and pleasing, and it is a style well adapted to ruins and picturesque scenery, where precision is not of much consequence. It is therefore greatly in vogue for landscapes; and it is recommended by the facility with which it may be executed.

The principle upon which aquatinta is performed may be thus explained: the copperplate, prepared in this customary manner, is sprinkled evenly with a resinous substance in powder; the plate being warmed, the resin adheres in a granulated form to the plate; the nitric acid is then poured on, and immediately attacks the copper, in all the innumerable interstices where it is left uncovered by the resin; and if an impression were taken of the plate, the effect would be like a wash of Indian ink. The different shades are produced by the longer or shorter time which the acid is allowed to act upon the plate.

In the ordinary aquatinta process, the plate is covered with a common etching ground, and the outlines of the design are etched in the usual manner. The ground being removed, the plate is slightly rubbed with the oil-rubber. It is then dusted with gum copal, reduced to a very fine powder, and sifted to make it even. The copal should be tied up in a muslin bag, and should be scattered by striking the hand which holds it against a ruler, or some other substance held in the other hand. By this means a very equal shower of dust may be obtained, which will adhere in some degree, on account of the oiliness of the plate; but any part which is loose, may be removed by striking the plate against a table. The plate may be then slightly warmed, till the gum changes colour, which will be an evidence that the adhesion of the gum to the plate is sufficient to resist the acid. If any part of the plate is to remain untinted, it must be covered with the turpentine-varnish used in etching; the plate is then surrounded with wax, and the nitric acid is poured on as in etching. As soon as the lightest shade is produced, the nitric acid is poured off, the plate washed, and every part sufficiently bitten is stopped with the

turpentine-varnish. The same operation is repeated for all the shadows, till, after three or four operations, the plate is finished.

In preparing the gum copal, it is, after being powdered, put through sieves which vary in fineness; the different parcels are kept in separate bags, and used in succession, beginning with the finest; for if the coarsest powder had not a fine ground to rest upon. it would produce a shade consisting of disagreeable daubs and clots. A great variety of resinous substances might be employed, but gum copal is the most suitable.

The time which the acid should remain on the plate, is best ascertained, as in common etching, by experiments on small pieces of spare plates.

The latest improvement which has been introduced into the art of aquatinta, has been made by J. Hassel, of London, who communicated his process to the Society for the Encouragement of Arts, &c. The following information on the subject is derived from his own account.

By this improvement, the artist can sketch his subject, with a black-lead pencil upon the copper, with as much facility as upon paper; and the art of engraving from this sketch is so simple and easy, that an artist can do it with five minutes' study. The trouble of tracing on oil-paper, and other retracing on the etching ground, is avoided, and the doubtful handling of an etching needle is done away, as the pencilling on the copper is visible in the smallest touch. It has also another perfection, that by using a broader instrument, it will represent black chalk.

This new plan is particularly pleasant for colouring up, to imitate the freedom of drawings, as the lines are soft, and blend in with the colour. It is a circumstance always objectionable in the common method of etching, that those so tinted can never be sufficiently drowned, nor destroyed, and always present a wiry hard effect. The plan is equally adapted to historical sketching, and might be the means of inducing many of our eminent painters to hand down to posterity their sketches, which at present they decline, from the irksomeness of retracing their performances, and the uncertainty of success with the etching needle.

The style in question differs essentially from what is termed *soft ground etching:* that process is always uncertain, cannot be repaired, and will only print about two hundred impressions; whereas, the specimens by the proposed plan will admit of being retouched if any part fail, and will print five hundred impressions with care.

Process of Drawing upon Copper, to imitate black-lead Pencil or Chalk.

A remarkably good polish must be put on the copper with an oil-rubber and crocus martis, (colcothar, or red oxide of iron,) well ground in oil, after which it must be cleaned off with whiting, and then rubbed with another clean rag. Then pour over the plate the solution to cause ground, which is made as follows:

No. 1.—Three ounces of Burgundy pitch,
One ounce of frankincense.

These are to be dissolved in a quart of the best rectified spirits of wine, of the strength to fire gun-powder when the spirits are lighted.

During the course of twenty-four hours, this composition must be repeatedly shook, until the whole appears dissolved; then filter it through blotting paper, and it will be fit to use.

In pouring on this ground, an inclination must be given to the plate, that the superfluous part of the composition may run off at the opposite side; then place a piece of blotting paper along this extremity, that it may suck up the ground that will drain from the plate, and in the course of a quarter of an hour the spirit will evaporate, and leave a perfect ground that will cover the surface of the copper, hard and dry enough to proceed with.

With an exceeding soft black-lead pencil, sketch your design upon this ground, and when finished take a pen and draw with the following composition, resembling ink: if a thin and delicate outline is desired, draw with a sharp-pointed pen; if the imitation of a chalk drawing is intended, a very soft and broad-nibbed pen will be necessary, or a small reed.

No. 2.—Composition, resembling Ink, to draw the Design on the Copper.

Take about one ounce of treacle or sugar-candy, add to this three burnt corks, reduced by the fire almost to an impalpable powder; then add a small quantity of lamp-black to colour it; to these put some weak gum-water, (made of gum-arabic,) and grind the whole together on a stone with a muller: keep reducing this ink with gum-water until it flows with ease from the pen or reed.

To make the ink discharge freely from the pen, it must be scraped rather thin towards the end of the nib, on the back part of the quill; and if the liquid is thick, reduce it with hot water.

Aquatinta.—Hassell's improvements.

Having made the drawing on the copper with this composition, dry it at the fire until it becomes hard; then varnish the plate all over with turpentine-varnish.

It will now be necessary to let the varnish, that is passed over the plate, dry, which will take three or four hours at least; but this will depend on the state of the weather; for if it should be intensely hot, it ought to be left all night to harden.

When the varnish is presumed to be sufficiently hard, you may rub off with spittle the touches made with the foregoing described ink, and use your finger to rub them up; should it not come off very freely, put your walling-wax round the margin of the plate, and then pour on the touches some warm water; but care must be taken it is not too hot.

The touches now being clean taken off, wash the plate well and clean from all impurities and sediment of the ink, with cold *soft* water; then dry the plate at a distance from the fire, or else in the sun, and when dry pour on nitric acid, which should, in cold weather, be prepared as follows:

To one pint of nitric acid, or strong aquafortis, add two parts, or twice its quantity, of soft water.

In hot weather, to one part of nitric acid, add three parts of water.

In every part of this process, avoid hard or pump water.

The last process of biting in with nitric acid, must be closely attended to, brushing off all the bubbles that arise from the action of the acid on the copper.

In summer time, it will take about twenty minutes to get a sufficient colour: in winter, perhaps half an hour or more. All this must depend on the state of the atmosphere and temperature of the room. If any parts require to be stopt out, use turpentine-varnish and lamp-black, and with a camel's hair brush pass over those parts you consider of sufficient depth: distances, and objects receding from the sight, of course ought not to be so deep as the fore-ground; accordingly you will obliterate them with the foregoing varnish, and then let it dry, after which the acid may be applied a second time, and repeat this just as often as you wish to procure different degrees of colour.

Every time the acid is taken off, the plate must be washed twice with soft water, and then set to dry as before.

To ascertain the depth of the work, rub a small part with a piece of rag dipped in turpentine, and then apply the finger, or a piece of rag rubbed on the oil-rubber, to the place so cleared, and it will give you some idea of the depth.

The walling wax is taken off by applying a piece of lighted paper to the back of the plate, all round the opposite parts of

the margin where the wax is placed; then let the plate cool, and the whole of the ground, &c. will easily come off by washing the plate with oil of turpentine, which must be used by passing a rag backwards and forwards, until the whole dissolves; it is then to be cleaned off by rags, and care must be taken that no part of the turpentine is left hanging about the plate.

If any part is not bitten strong enough, the same process is to be repeated.

The plate should only pass once through the press, in taking the impressions from it.

Directions respecting Grounds, Gum-water, &c.

No. 1.—The ground in hot weather must have an additional one-third of spirits of wine added to it for coarse grounds, to represent chalk; and one-half added to it for fine grounds, to represent blacklead pencil; and always to be kept in a cold place in summer, and a moderately warm situation in winter.

Gum-water must be made in the proportion of half an ounce of gum-arabic to a quarter of a pint of water.

Turpentine-varnish is composed of an ounce of black rosin to an eighth part of a pint of spirits of turpentine. If the weather is excessively warm, it ought to be made with a sixth part of a pint of spirits of turpentine.

Tracing-rag should be made of a piece of Irish linen, not too much worn, the surface of which is to be rubbed with another rag dipped in sweet oil, just sufficient to retain a small portion of vermillion or pounded red chalk. This must be placed with the coloured part towards the ground of the plate, and the drawing or tracing laid upon it, which must be traced very lightly with a blunt point or needle.

Tools used in mezzotinto scraping.—Grounding the plate.

OF MEZZOTINTO SCRAPING.

Engravings in mezzotinto resemble Indian ink drawings; they differ from those in aquatinta, with respect to which the same observation is usually made; and yet mezzotintos and aquatintas differ from each other. The difference can scarcely be distinctly described, but on closely examining the shades of mezzotinto, they appear to be composed of lines or hatches crossing each other in all directions; while the shades of aquatinta, examined in the same way, have a granulated appearance. Mezzotinto has about the same degree of merit for portraits, that aquatinta has for landscapes.

The tools employed in this art are the grounding-tool, burnishers, and scrapers. The grounding-tool has the shape of a shoemaker's knife, with a fine crenelling edge. It is used to indent the plate with lines in every direction. The burnishers are like those used in etching, but are required of various sizes. The scrapers are formed of blades like a surgeon's lancet: they are also required of various sizes.

The copperplate designed for mezzotinto, is prepared in the same manner as for every other species of engraving. The first step of the process is to mark upon it the limits of the design, and within these limits the grounding tool is employed. It is pressed upon in an even, steady, and moderate manner, and with a rocking motion advanced over the plate, till the whole space within the limits is covered with lines. These lines are crossed by others at right angles. The two diagonal directions are then taken. The whole series of lines is then repeated several times, taking care not to enter the same lines twice; till at length, by the extreme closeness of the lines, the original surface of the copper is entirely destroyed, and if an impression were taken from the plate, it would present a uniform and completely black shade. This operation is called laying the mezzotinto ground.

To the ground thus formed, must now be transferred the outline of the design. The ground is blackened by the smoke of a taper, and the back of the design, or a copy of its outlines

on transparent paper, being rubbed with red chalk, is laid upon it, and the outlines traced with a blunted point. The red chalk on the back marks the plate wherever it receives the pressure of the point, and when the paper is removed, these outlines are rendered permanent by tracing them with a blunted dry-point upon the copper.

This progress having been made, it must be observed, that the original ground, without any alteration, serves for all the deep shades; but the lights, and light shades, are all produced by scraping or burnishing down this ground, either entirely or in part, the strongest lights being produced the first. The burnisher is chiefly used after the scraper, to clear the strong lights. As this process goes on, therefore, frequent proofs or impressions should be taken of the plate, to observe the effect; and if too much of the ground has in any case been removed, it must be again formed by a small grounding-tool.

OF ENGRAVING ON WOOD.

The wood most proper for engraving upon, is box-wood, which should be cut to the height of printing types, by slices from the trunk of the tree, cut at right angles to the pith. This is done in order that the engraving may be executed on the end of the wood, as the graver will not, in all directions, make a smooth stroke upon any other side of the wood, nor would the work be so durable, if the fibres did not stand perpendicularly, while the block would be more liable to warp.

The piece of wood being planed very smooth, the design is drawn upon it with a black-lead pencil; then every black line which the engraving is to exhibit, is to be left untouched, but all the intermediate spaces are to be cut out with the square or lozenge gravers, used to copper, or with tools of various sizes, with handles like gravers, and the same length, but shaped like chisels. In this process, it is obvious that manual dexterity is the main requisite.

Engraving on wood.

In engraving upon copper, every part which is to be white must be left untouched, and the black lines must be indented: in engraving upon wood, every part which is to be white must be cut out, and the black lines must be left standing. This difference is demanded by the difference in the mode of printing.

Impressions of engravings upon wood, have not the precision and brightness of those from copper, neither do they bear close inspection so well, but they unite greater softness and force, when looked at from a little distance. Wood engraving has of all subjects succeeded the worst in depicting the human countenance; but to foliage, water, the trunks of trees, and old buildings, it is well adapted.

The principal advantages of an engraving upon wood, are, that it can be struck off at the same time as the letter-press of a book, and that at the lowest computation it will yield, without requiring repair, four times as many impressions as a copperplate. Hence it would appear that wood engraving is cheaper than that on copper; and this is really the case, when a moderate degree of excellence only is required. But let an engraving on copper, and the expense of the best mode of taking impressions from it, be set against an engraving on wood producing an equal effect, with the expense of the best impressions from it, and the copperplate will be found preferable: for the best mode of cutting in wood is very expensive, and the costliness of the best mode of printing engravings of this kind, overbalances the advantages derived from the greater number of impressions they will yield.

None but India paper will take very good impressions of wood-cuts, and paper of this description is not only scarce, but about five times the price of the best writing paper. Satin receives particularly fine impressions of engravings in this style; where there is much foliage, or water, the brightness of the lights admirably imitates the effect of sunshine.

It is a singular fact, that one process in the art of engraving upon wood, much practised by the early masters, is entierly lost. As those lines which are to appear white, in an impression taken from a wood block, must be indented or cut out with the graver, the crossing of lines, for shades, or for net-work, can very easily be effected, if those lines are to be white, and the ground black: but if the contrary be desired, viz. a white ground and black lines, reticulated work, which is technically called *cross-lining*, although very coarse, becomes to the wood-engravers of the present day, an undertaking of immense labour and difficulty. Yet the early artists produced black lines crossing each other, apparently with as much facility as shades con-

sisting of single lines, for some of them have introduced into a single piece, where they might have been spared, as much as would take a modern engraver years to accomplish. The circumstance of the large quantity of crossed shades which they produced, seems entirely to refute the supposition, that prodigious liberality of application, and not any peculiar secret, constituted their means; and conjecture has hitherto been exercised in vain to assign another explanation of their mode of working. The artist who shall revive or discover an easy mode of cross-lining, will contribute much to the improvement, and perhaps to the extended application of this useful but laborious art.

The same as at page 43

Water Proof Blacking

Take 1 pint of drying oil 2 ozs yellow wax, 2 oz. Spirit of turpentine, 1 oz, pitch (burgundy) and melt them over a slow fire.

When cold this composition may be laid on new boots & shoes with a Sponge, in the sun, or before a slow fire; lay on as often as they become dry, until the leather be fully saturated. The leather then becomes Impervious to wet, the Shoes & boots last much longer, acquire softness & pliability. This is the most effectual preservative against cold & chilblains. Jane Sun Aft[r] 1833

To Distroy Thistles, Fern and Colts-foot. Roll the ground on which they grow with a Cast-Iron Roller. This was discovered by observing that whenever a cast wheel passed over them they did not grow. 1835

To Take Spots out of Silk

Mix Spirits of Hartshorn with an equal quanty of water for

Black silks and twice as much for other colours.

Rub it over the spots with a feather or sponge.

The Latin name is Cornu Cervinum

To Cure the Ague.

Take 18 grains of Sulphate of Quinine, into 12 pills, conserve with. Take 2 every 4 hours for 24 hours, beginning 20 hours after the fit, and when the Ague comes on take one ounce of Salts mixed with 6 grains of Rhubarb and one of Ginger.

Half the above for a child.

The Hydrostatic, or Water Bed

Invented by Dr Arnott is of inestimable value to the sick who are long confined in bed.

Construction. Make a trough of convenient length and breadth, and a foot deep, lined with tin or lead to make it water tight. Fill it half full of water, over which throw a sheet of india rubber cloth

as large as would be a complete
lining to it when empty.
The edges of this sheet should be
touched with varnish, to pre-
vent capillary attraction,
and afterwards secured to the
top of the trough, so as to shut
up the water as it were in a
bottle, the only entrance left
being through an opening at
one corner which could be
perfectly secured. Upon this
expanded sheet the Mattress bed
&c &c are laid, and will not
seem be distinguished from
a common bed, but from
its surprising softness or
yeelding. Without the bedclothes
it will answer as a warm
or cold bath.

The body will sink 4/5 of its
depth in the water.-

The human body is nearly
of the specific gravity of water,
as is well known to swimmers,
and is therefore upheld in
water, when he rests tranquil-
ly with his face upwards,

If his body be 2½ feet in
bulk he will displace
2½ cubic feet of water equal
in weight to his body.*

Extracted from P. Magazine

* This I have often tried, both
in fresh & salt water and
find that I can lay, or recline
in water for any length of
time. I was first led to try it
from the remarks made
by Dr Franklin on Swimming.
My first trial was at North-
waked in Cheshire, in a
bathing place, about 6 feet
in diameter 5 deep, in warm
salt water. The water did not
come higher than my breast.
I had therefore to hold my feet
up with my hands. I lay
my waked on the edge of the
bath & found I stood between
15 & 20 minutes. My next
trial was in the river Irwell
at Manchester, about 2 miles
above it, at a place called
Broughton ford. Here I floated
down the stream as long as

I could find sufficient depth of water. My next trial was at Barbadoes in the sea where the swell was pretty high yet I found no difficulty in remaining any length of time I chased on the waves. I have often tried it since & never failed. — J. Wilson Surjt.

Inflamation of Throat

cured by Powdered Alum applied to the part affected, with the finger. This never fails to cure if applied before an abscess is formed in the tonsils. From Med: Journal May 35

Pneumatic Punch and Ginger Beer

Fill 2 half pint tumblers half full of boast Water, in one dissolve 30 grains of Carbonate of Soda, and in the other 25 grains of Citric acid, both pounded fine; when the powders are perfectly dissolved, pour the contents of one tumbler into the other

and sparkling soda water is instantly produced.—

Ginger Beer will be produced by the addition of 8 grains of ginger & 3 drams of sugar.

To Make Ginger Beer another way

Mix 1 oz. of Ginger powder
½ " Cream of tartar
1 lemon sliced
2 lb lump sugar &
1 gal: water.

Simmer it over the fire for ½ an hour, & ferment it in the usual manner with a table spoonful of yeast, then bottle and in a few days it will be fit for use.

To Make Barm or Yeast

Boil 1 lb flour, ¼ lb sugar & a little salt in 2 gals: water for an hour. Bottle it whilst milk warm & cork it close & it will be fit for use in 24 hours One pint will make 18 lb bread.

Receipe to Cure the Dysentry.

Mix 2 wine glasses of olive oil
2 " Molasses
2 " Rum

Simmer them well together until it becomes the thickness of honey stir it whilst simmering to prevent the oil seperating, continuing the same till cold.

Take a spoonful once an hour till the disease is abated then once in two hours, or as the judgement may direct

Ext. fr. American paper.

Indian Ink to make.

Boil the parings of parchment or of a leather glove to glue. Hold a plate over a candle or lamp, until black, and then add a little of the liquid whilst the plate is hot, and the black will be equal to the best Indian Ink. —

Antibilous Pills.

℞ Pill: Hydr. ℋ
Pulv: Rhu: ℋ
— Ipecacuanh gr: v
Made into 9 Pills. —

Liquid for Cleaning Brass &c

Take 1 oz. Oxalic acid
2 " Rotton Stone pounded
1 gwent of turpentine
1/4 pint olive oil. or sweet oil

Blacking for Harness.

Take 1 quart of boiled linseed oil
2 oz. Turkey amber, burned on
a piece of tin, which add to the
oil & boil them for 2 hours
Then add
2 oz. Litharge & let it simmer
a while, and next add
x 1/4 pint of Spirits of turpentine
which while set it on fire, let it
burn some time, & then put it out
by covering it close up with something
and let it stand until cool, and
then if properly made will be quite
thick

To render it fit for use add
Turpentine until it can be
lay on with a Sponge.

x The oil must cool a little before
the turpentine be added

Blacking for Boots &c

1 oz. Spirits of Vitriol
1 " Spirits of Salts
4 " Ivory black
1 pint of vinegar

½ a Table Spoonful of treacle
½ —— " —— " —— of linseed oil
1 —— " —— " —— of Sugar.

Mix the two Spirits with ½ a pint of cold water & let them Stand 24 hours then mix the whole together & let them Stand near the fire to simmer for some time.

Blacking for Harness.

Bees wax, or wax candles, } equal
Ivory, or lamp black — } parts.

Turpentine sufficient to cover the whole which will dissolve the wax in the course of a day.

This blacking answers very well, & will not rub off, even when wet nor does it make the leather hard if kept clean & oiled occasionally.

Chilblains — Cure of.

Raw Starch mixed with cold water to the consistency of paste will effect a certain cure whether broken or not. One of my children was when it was as big as half-a-crown. Inv. Soc. 13 Dec '35

To take Ink Spots out of Paper.

Take a weak solution of oxalic acid & wet the spots, which will generally disappear. Should this leave a yellow mark

shewing the extent of the wound part. Sponge it lightly over with alcohol / clear spirits, Whiskey, would perhaps do / and the paper will be restored to its original whiteness This will take Ink Spots also out of leather & perhaps out of any other white substance.

For A Cough

Make a Plaster of Bees-wax. Burgundey pitch, & resin each 1 oz: melt them together in a pipkin then add 3/4 oz common Turpentine & 1/2 oz oil of mace; spread it on sheepś leather, grate some nutmeg over it & apply it quite warm to the pit of the Stomach.—

For a Recent Cough & Cold

1 Tea cupful of Linseed
1/4 ℔ of Sun raisins and
2 penny worth of Stick liquorice
2 quarts Soft water & simmer all together till it is the thickness of cream when cold; add 1/4 ℔ sugar candy.—Take 1/2 pint of this warm lowwick and 1 table spoonful of old rum The same quantity of white-wine vinegar, when going to bed— A little may also be taken whenever the cough is troublesome— Reckoned Infallible.

Casks to Clean.

1 oz Oxalic acid
2 " Rotton Stone pounded fine
1 quart of Turpentine
1 pint of the best sweet oil. Mix.

To Make Wines

General Rule. Be careful to put in yeast in three hours. Do not let it work too long in the butt. or it will take off the sweetness of the fruit from which it is made.—
Let your vessels be Thoroughly clean & dry.— Before you put in the wine rinse them with a little brandy.

Home Made Port

Take 8 gals. of June Port wine
40 " Cider
12 " brandy (French)
To give it a degree of roughness add the juice of elderberries and of sloes — and colour will give it the colour.—

Turnip juice may be used instead of cider, and brandy Spirit instead of French brandy.—

Black Cherry Wine

Bruise 24 lbs of black cherries, but not so as to break the stones, then pour 6 gals. of boiling water on them

stirring them well together, and
when they have stood 24 hours
strain them through a cloth, and to
every gal. add 2 lbs of sugar, mix
it well & let it stand 24 hours longer,
then cast & when fine bottle off for
use.

Birch Wine

Draw the sap from birch trees
by tapping them about a foot
from the bottom, which if not
used the same day should be bottled
and sealed. — Boil the sap as long
as any scum will rise, skim-
ming it all the while. Pour it
into a clean tub, and when nearly
cool set it to work with the yeast
spread upon a toast, let it stand
5 or 6 days stirring it frequently.
Then into your cask a large burning
match & bung close up while burning,
then put in your liquor, laying
the bung over the hole, till it has
done working, stop close, and in
3 months bottle for use. —

Lamp, to prevent it smoking

Steep the wick in strong vinegar
then dry it well, & it will burn
without smoke clearly & pleasantly
and give much satisfaction
for the trouble in preparing it. —

Eggs to Preserve

Eggs may be kept for 2 yrs. in fully saturated lime water — M Cadet suggests adding a little saturated muriate of lime. —

Eggs may also be preserved by boiling them 20 seconds, and then keeping them in finely sifted & well dried ashes.

They may also be kept, for some time, in salt.

Marking Ink

Pour a little Nitric acid / aqua fortis / into a cup, into which put a little fine Silver; when the effervescence ceases, filter thro' blotting paper & bottle; then add a little gum arabic & sap green, and after the whole is combined it is fit for use.

Soft, To Make, by the cold process, as in Virginia

Put a common fish barrel in the cellar, filled nearly with a strong ley of wood ashes, into which put the grease without melting, stirring once a day; in a few days you can tell whether there be too much, or too little grease, & so add grease or ley as wanted. In three weeks it becomes excellent soap. —

Cottage Beer to make of Bran

Take a quarter of good sweet wheat Bran & put it into 10 Gals. of water with 3 handfuls of white Malthan hops, boil the whole till the Bran & Hops sink. Then strain it thro' a hair sieve or shut into a cooler. & when it is luke warm add two pounds of molasses, 3 pints of treakle; Then pour the whole into a 9 gal. cask with two table spoonfuls of yeast. When the fermentation has subsided, bung up, & in 4 days it will be fit for use.

Typhus Fever to cure

Take a teaspoonful of mustard (common) which is about 2 drams, for an adult, and mix it in ½ pint warm water, which in less than ½ an hour will produce a gentle, free, & salutary vomiting, merely discharging the stomach of its contents, & during its operation take ½ pint warm-water. — Immediately on the mustard being taken into the stomach it produces a glow of warmth over the whole system: & the skin is soon changed from that hot, dry & uncomfortable state always to be met in unrecipient fevers,

to a soft, moist, & cool state, which is succeeded by a gentle perspiration. In about 8 hours after the stomach has been emptied, take (for an adult) 4 grains of calomel, & 2 hours after the calomel take a gentle saline purgative. Thus, if taken within the first two or three days, it seldom fails to cure.

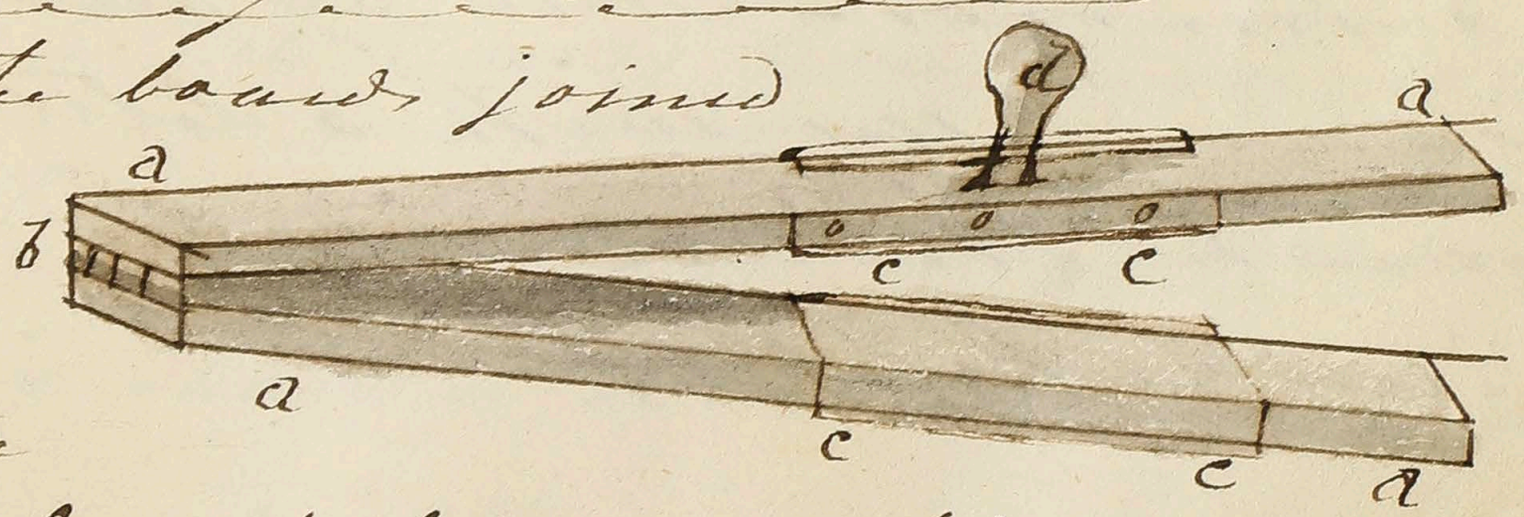
Cleaning & Glass to Mend

Make a paste of pounded oyster shells & white of eggs, with which join the broken parts together, & hold them so for 6 or 8 minutes, & then set them to dry. This cement will resist hot or cold water

To Prevent Beer & Cider from Souring

Add 4 lbs. of toasted bread to every hogshead.

Bottle Stand



a a are the boards joined together by a hinge b. They are 20 inches long, 6 broad, & 1 thick; c c is the buff or leather nailed on to the boards, and d the handle. In using it lay the bottles on the board, inserting them

gently together & rub the knife between them on the leather, & in a few strokes back & forwards will clean the knife The shoulders & back may be cleaned by rubbing on the heart turned over. Thus a great saving of time will be effected. —

Mahogany to Imitate

Any close grained wood may be made to imitate mahogany, thus. The wood being planed perfectly smooth, rub it first with a solution nitric acid which prepares it for the other materials, then lay on with a soft brush a mixture of

1 oz dragons blood dissolved in
1 pint Spirits Wine
1/3 " Carbonate of Soda mixed together & filtered. This process is to be repeated several times & it will soon have the appearance of a mirror — And by rubbing it occasionally with a little cold-drawn linseed oil the polish will be kept up. —

Guilding or Silvering Iron

The Moschus and Nasquashes of India use an application in ornament their work that stands the effect of weather, that nearly equals guilding, at costs little more than common har and which might be useful in this country, for the ornamenting and preserving iron work with a smooth surface.

In preparing this factitious guild a quantity of pure Tin is melted and p ed into a box (a stone bottle would do) w with them is only a joint of bamboo, closed at both ends, except the perforat at which the tin is poured in, which internally plugged up. The bamboo is violently shaken while the tin is melt which makes the metal assume, w cold, the form of a very fine grey p der; this is then sifted, and is mixed w melted glue. When it is to be applied

it should be reduced, by the addition of water, to the consistance of thin cream, and is laid on with a soft brush, like ordinary paint, when dry it appears like a coat of common grey water colour, until it is gone over with an agate burnisher, and then forms a bright, uniform surface of polished tin, a coating of white or gold coloured oil varnish is immediately laid over it, according as it may be intended silvering or Guilding.

The powder is the same as that sold by the druggists under the name of <u>powdered tin</u>; but their powder is not usualy fine enough. If the glue be too strong, the burnisher has no effect; and if too weak, the tin crumbles off under the agate

Weekly Express Jan 18 24

Of Herpes a kind of Itch

Herpes consists in an eruption of of broad Itchy Spots dispersed here and there over the Skin, of a whitish or Red colour, which at length run into each other, and discharge a thin serous fluid. After a certain time they form scurfy scales, which peel off, and leave the under surface red; the same appearances are, however, renewed in successive series, till the disease is either cured or goes off spontaneously, which is however rarely the case.

The cure of herpes is to be effected by lotions of Vitriolated zinc, or Cerussa acetata, together with ointments composed of calcined zinc, Mercury, or the Vitriolic acid.

A strong decoction of digitalis is said to be an effectual external application to herpetic eruptions.

Touching the affected parts thrice a day with the juice of

has also proved a very excellent remedy in herpetic complaints.

Where the disease is inveterate, it may be necessary to have recourse the use of internal Medicine, such as pills of Calomel & Antimony †, a solution of Muriated quicksilver, the decoction wood, or Nitrolic acid julip together with a vegitable & Milk diet ‡

℞. Zinci Calcinati ——— ℥ss.
Adipis suillæ ——— ℥j. M.
ft. Unguentum

℞. Calomelanos
Sulph. Antim. præcip. āā ℈j.
Guaiac. Gummi-resina ℈ij
Bals. Copaib. q. s. ut = Quantum
Suficet to mix
Fiant Pilul. lx. Capiat j-iv.
vel

℞. Antimon Tartarisat. gr. xv.
Calomelanos ℥j
Opii ℥ss.
Syrup. simpl. q. s. M.
Fiant Pilulæ lx. Sumat aegri j.

℥ Rx. Acid. Nitriolic ℥ij
Aq. Fontan. ℥ij/ss. Post effervc
centiam adde
Syrup Simpl. ℥ij. M.
Capiat ℥j. vel ℥ij. bis terve in
die ex Aquae cyatho.
Thompson's Pract

Of the Scurvy

Lemon or Lime juice is an excellent medicine in this disease It may be taken, at first two ounces a Day, and increased to 4 ounces, mixed with Sugar & water, & a little wine may be added. Proved on board

A Solution of Nitre & Common Vinegar, has been tried by Mr. Patterson Surgeon in the Navy, and, he says, never failed. At first he dissolved two ounces of Nitre in a quart of the Ship Vinegar, and gave ½ an ounce twice or thrice a day, also washing the parts affected with it. [illegible]

He afterwards increased the dose to
an ounce & repeated it as often as before.
In severe cases, he says, finding the
former dose producing no ill effects,
he now, instead of adding two ounces of
nitre to a quart of Vinegar, added four,
and gave from ½ an ounce, to two ounces
two or three times a day, & when the
patient cannot bear the solution,
it may be diluted with water
The discharge by stool, or the pre-
sence of gripes or Nausea, will be
a guide with respect to increasing
or diminishing the dose, but at the
same time, it is not a slight degree
of Nausea, or Colica, or diarrhœa that
renders the quantity of medicine to be
altered. In delicate constitutions
small doses of the Nitrious Vinegar
have been found to ruffle the Stomach
& intestines, to prevent or remove which
two, three or four grains of Camphor
may be added with each dose.
Dr Thomson thinks that Nitre
mixed with Lemon or Lime juice
would answer be preferable to the
Vinegar

Recommended for the Ring worm

A decoction of Sarsaparilla, & the Antimonial solution, and a lotion of Muriate of Mercury to wa[sh] the parts affected.

Lime water & Calomel / the Blac[k] wash / recommended for diseases of the Skin; also

Gun Powder mixed up into a past[e] with lime juice -

Receipe for Preserving Birds or Insects &c

Wash them with a Solution of Oxym: Hydrarg: (Sublimate Corrosive / This solution, or if kept in powder, m[ust] be kept from Children as it is the mo[st] deadly poison - The powder much resem[bles] salts. -

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Engraving in Relief upon an Egg Shell

The Shell must be a thick one, l[et] it well in Fresh water & dry it carefully [in] a linen cloth. Melt some Tallow or Fa[t]

and, while very hot, make any figures you please with it upon the Shell, either with a pen or pencil. Take the Shell then, by the two ends, and lay it gently in a Tumbler filled with Vinegar, or diluted aqua fortis, the acid of which, in about three hours & a half, will have coroded so much of the Shell as to leave the parts drawn upon in Relief, the vinegar having no influence upon the fat which covered them.

Chronic Rheumatism

The Extract of the leaves of Thorn apple Grain in 24 hours gradually increased till affects the Brain – also a tincture of the Same to be rubbed on the parts –
By Dr. de Kerckhoff –
This being a poison – Must be regulated by a Doctor –

Itch –

Wash 2ce a day first with Soap & water then Sulphuret of Potass (4 Drs. of Sulpt. ½ a pint of Rose water.)

Olive oil will also Cure the Itch as soon as Sulphur, in an average of 17 Days

Professor Delpech
Montpellier France

Oxalic Acid, Poisoned by,
Cured by taking Whiting,
a table Spoonfull for every
ounce Acid - made into a
thick liquid, and given
as soon as possible, then
injury will then be slight
but a medical gentleman
should immediately be
sent for to cure the infla-
-mation caused by the acid

Itch to cure

1 Quart of Vinegar
2 Table Spoonfuls of Lard
1 — Do ——— Ginger
1 — Do Black pepper
1 Do Allspice
1 Do Cinnomon
Mix altogether & then
simmer down to a salve
Mrs Cornish 8/3/51

Another from Dr Grahams Domestic
Medicine — He says the remedy used with
the greatest success is Sulphur made
into an Ointment with Hogs Lard
rubbed on the infected parts at night
add a little Essence of Lemon to take away
smell

Cure for the Thrush in Horses feet.

Dissolve 2 drs of nitrate of Silver, with 20 drops of nitric acid, in 6 ounces of elder flower water, and then add 2 drs of the saturated solution of nitrate of copper.

After the foot has been well washed with a brush and dried, a little of this lotion is to be poured into the diseased part every night, and then plugged up with a little tow moistened with the same. If it be of long standing and obstinate much add 3 oz. of Myrrh to the lotion.

Cure for the Mange in Dogs.

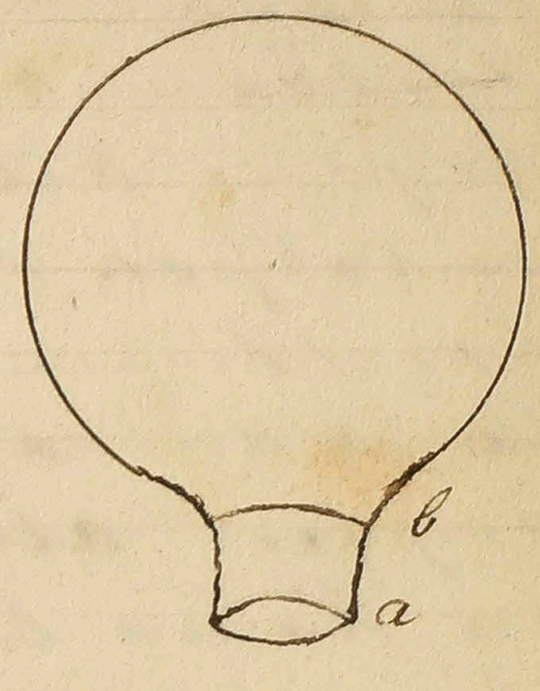
Dissolve 3 drs of the Sulphuret of Potass in 12 oz. of water, with which wash the parts night and morning.

Receipe to render Leather impervious to wet

Take of Frankincense 1 oz. olive oil 4 oz. oil of Turpentine 12 oz; — dissolve the frankincense in olive oil by gently boiling, & when nearly cold add the Turpentine 2 oz. of the oil of Spike lavender may be added to make the smell agreeable. A little to be well rubbed inside of the shoe or boot every 2d day for a week, before worn and once outside

To Make a Balloon.

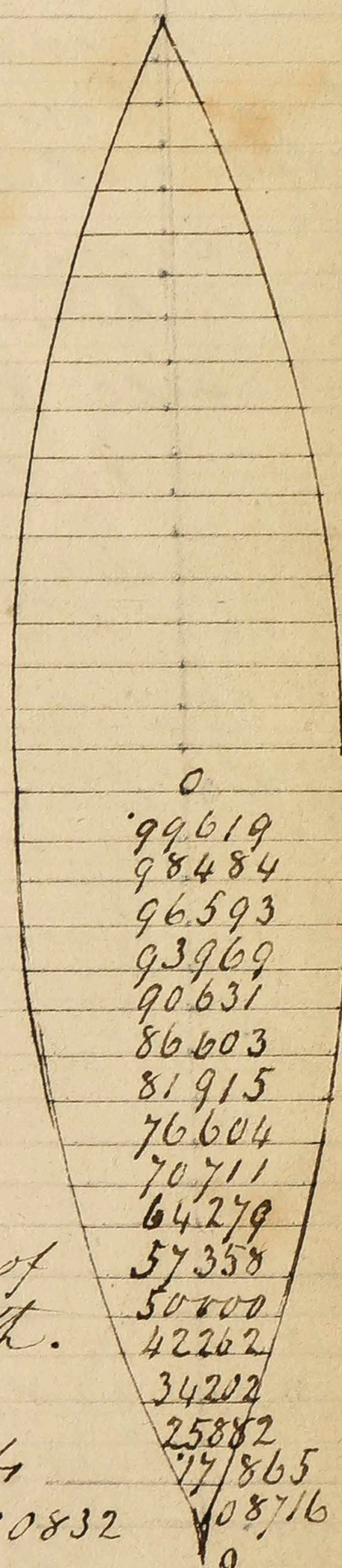
The best shape for a balloon is Spherical. One filled with Rarefied, or Heated air should be 1/3 of the diameter open at the bottom, and have 2 hoops of wood or wire (according to size) as at, a.b. and should have 3 or 4 small wires coming from the sides to meet in the centre to suspend the pan by to hold the fire after it rises



The length of the Gore must be 1/2 the length of the circumference, 1/2 of which must be divided into 18 parts.—

The width in the centre of the Gore is one, and deminishes to Nothing at the point

Any fire to rarefy the air in the balloon at first will do, that is a fire made of any sort of fuel; but the fire to rise with it is best of Spirits of wine & cotton, or lamp oil & rosin will do.—



To find the weight & quantity of cloth to construct a balloon of a given diameter. multiply the Square of the diameter by 3·1416 & the product will be the area of the surface of a Sphere. Let the Diameter be 8 feet, then

$8^2 \times 3{\cdot}1416 = 200{\cdot}0624$ feet

Multiply the weight of 1 yd by the No of yards & you have the weight of Cloth.

The Solid Contents of a balloon may be found by × the cube of its diameter by 0·5236. Ex. $8^3 \times 5236 = 268{\cdot}0832$

Assension power. A cubic foot of atmospheric air weighs about 1·2 oz. & inflamable air about 7 times lighter: hence in the present balloon, 268·08 × = 32169 ÷ 6 = 5361 lbs to this add the weights of the ma & the difference will be its assension power, or the weight it will raise.

Varnish used for a balloon

Boil 1 pint of linseed oil with 2 oz Sugar of Lead & 3 oz of litharge and when they are dissolved add 1 lb of birdlime and ½ pint of drying oil. The vessel should be of iron or Copper. It should boil gently until the birdlime ceases to crackle which may be ½ an hour. Then pour 2½ pints more drying oil upon it, & let it boil about an hour longer, taking care to stir it frequently. It will be found to be sufficiently boiled when by rubbing a little between two stones it draws into threads. After it is nearly cool add an equal quantity of Spirits of Turpentine. When used it should be luke warm & the balloon sketched out. It will be about 24 hours drying.

To take the Impressions of Plants.

Take half a sheet of fine wove paper and cover the surface with sweet oil, let it lay a few minutes & then rub off superficial oil, and hang the paper up in the air; when nearly the paper slowly over the flame of a candle or lamp until black, lay the plant thereon, place a piece of clean paper over, and rub it equally with the finger about ½ a minute; take up the plant and place it on the paper or scrap book where it is desired to have the impression; cover it with a piece of blotting paper, & lay a gain an object, a representation of the plant will appear almost equal to the finest engraving. The same piece of black paper will serve for a great number of impressions. — The Analyst. —

Cobbetts Corn.

9 June. Having planted some Indian Corn in my garden in William Street, as not knowing how to cultivate it I got the Co of Wm Cobbett's book on it's cultivation, I copy. following.

When the plant is up a few inches to keep slugs from it sprinkle the roots with quick lime.

When the plant is 3 inches high it sh be hoed lightly, and when 6 or 8 inches, it should be well and deeply hoed again; an when the Tassel, or blossom head begin to vacate its appearance, and when the ears begin to shew themselves form in the sockets of the blades on the sid of the stalks, which will be about the same time, and about the middle of J it will be a good time to give it anoth good hoeing. Topping should be done, wh. you see, upon stripping the husks open a little at the tops of the ears, find the grains of co hard enough to resist the strong pressure of the thumb nail; and when all the farina has quitted the tassel, and the tassel completely dead and dry; and when the silk becomes withered and brown. When you do this

Jesicca the sooner they are taken off the
letter.

Tulls Horse-hoeing Husbandry, by Cobbett
strongly recommended to be read, by Mr.
Cobbett.

Mr Cobbetts Petition to the King heading
&.

To His Most Gracious Majesty, George the
Fourth, King of the United Kingdom
of Great Britain & Ireland.

The Petition of Wm Cobbett of
Kensington in the County of
Middlesex,

Most humbly Shews,

That there was published in London, &c

(Second paragraph)

That your humble Petitioner published
at the same time, &c

To Make Milk Punch, Mix
3 Quarts Milk, 4 oranges, 1 Pint Brandy
3 lbs lump Sugar, ½ oz. Ginger
1 Quart water, Strain well and Bottle it
and it will be ready for use in a
few days.

The Sugar may be increased or
diminished according to taste.

To Make Pepper Punch, Mix
24 Quarts water, 3 quarts ~~water~~ Rum.
1 quart lime juice, 9 lbs lump Sugar
½ lb ginger, and about a Sea-spoonful
of large Cayenne Pepper.
Strain and Bottle it and it will
be fit in a few days according to the

To Make and Use French Polish for Furniture &c.

Mix. Spirits of wine 1 Quart
Gum Lack ½ lb well worked
Put them in a bottle, and boil the bottle until the Lack is properly dissolved, when it should be about the thickness of Porter

To use it, put a piece of flannel on the end of the cork which goes into the bottle, wet it with the liquid, and then cover it again with a piece of linen and then rub the Table or other Furniture with the end of the cork, so covered gently, and then just a little Linseed oil on the end of the cork and Rub the Job again, and in a few times doing you have a beautiful polish -

---

To Cure the Poisonous Bites of Serpents or other Animal Poisons by the local application of Common table Salt.

The Reverend J. G. Fisher was a missionary in South America, and is anxious to communicate to the Public, that whilst in that Country he used to cure effectually all kinds of very painfull and dangerous Serpents bites, after they had been inflicted for many hours, by applying common table Salt to the wound which I kept moistened with water till all was well which was in a few days, without any bad effect occurring afterwards.

Mr. Fisher is of opinion that it would cure the bite of a Mad Dog.

To Take out Spots

Boil together 1 quart of Ox-gall and 4 oz. of pulverized alumn after several boilings add 4 oz. of common salt. Let the liquor settle and then decant and preserve it in well stopp'd bottles. It may be rendred aromatic by adding a little of the distilled essence of lemon, which also augments the properties of the preparation.

To Preserve Insects

Take a pint of the Spirits of wine, and a little light amber, which should be allowed to dissolve in it twenty four hours; to this add a little mastic, as much red arsenic, and an equal quantity of turpentine; and let it dissolve in a vessel 24 hours. This done, take the insect you wish to preserve, extract the Entrails, and let it be well bathed for several days in Spirits of wine, into which some sugar candy has been put. In this state, rub it over with the varnish, at intervals, until it shines. It may thus be preserved for a long time.—

To Counterfeit Gold

Put into a Crucible 16 parts of Platina, of pure Copper, and 1 of pure Zinc, which cover with powdered Charcoal, and then place it on a strong fire, until the fusion has reduced the three materials into one mass, which will be the said counterfeit Gold.—

Tory and Whig

Origin of these Terms. —

The Term Tory was originally used as the designation of certain notorious banditti in Ireland.

Whig was first applied to the Se sectarian Rebels north of the Tweed.

Toryism tend to the establishm of Arbitrary Power in Church an State, but

Whigism tends to a more liberal form of Government.

Perhaps, The best way of discer the Rival factions, is the
Tories are the men in Office an
Whigs those out of Office.

There is no clearer description, f when Tories are out of Office they become as Violent Reformers, as the most conscientious of the Whigs; while the Whigs in Office are in no degree more energetic for measure of Liberty, than the Tories are— forwarding of the Tories

To Destroy Slugs

Take Cabbage Leaves, steam them till quite soft, rub them with fresh butte or Lard, and then lay them in the places in- fested with Slugs. In a few hours the leav will be covered with Snails & Slugs, which then destroy. — Tried at Bays Water & found to be attended with Complete Success. —

Potato Cheese

In Thuringia and Part of Saxony, a kind of Potato Chees, made in the following manner, is generally preferred to that made from milk.- Boil good mealy potatoes, and when cold, peel and reduce them to a uniform pulp, with a rasp or mortar. To five pounds, add a pint of sour milk, and the requisite portion of powdered salt; knead the whole well, cover it, and let it remain for 4 days, according to the season; then knead it, and place the chees in small baskets, That the superfluous moisture may run off; then dry them on the stove, and place them in layers, in large pots or kegs, for a fortnight. The flavour is improved by age. It should be kept in a dry place, and it will last for years, and never engender worms.

To Make Artificial Cider-

Water 25 Gallons,- Moist Sugar 25 lbs- Tartaric Acid 8 oz. Spirits of wine at 36°- 2 quar. Elder flowers 4 oz. mix and brew them in the usual way, when the fermentation is over rack off the cask, leave it quiet for 10 days, then fine and bottle off. Each bottle will cost about 3 pence.— R. from a French Paper.

Eau-de-Colayne, to imitate-

Spirits of wine 30° proof 1 quart
Essence of Citrons 2 drachms
Essence of Bergamot 2 drams
Essence of Lavender ½ —" —
Essence of Cedrat 1 —" —
Neroli 10 drops- Rosmarin gross 10 drops
Tincture of Benjoin 3 drams and
Otto of Roses 2 drops- Mix and having well shaken the mixture several times, filter.-

Port Wine to imitate

Cider 3 quar. Brandy 1 quar. Gum Kino 1 dram-

Old Hock to imitate

Cider 3 pints French Brandy 1 pint and Alcolized nitre ether 1 dram.—

To Restore wine which has become sour.—

Dry walnuts in the proportion of one to every gallon of wine, and burn them over a charcoal fire, when they are well lighted throw them into the wine and keep up. In 48 hours the acidity will have been corrected

German Perfume

Mastic and Sandarac of each 3 oz. Storax 6 oz. Benjoin 6 oz. Cloves, Cinnamon Sassafras, wood of Rhodes, Iris, Cascarilla Red Rose leaves, Lavender, Pennyroyal, Vanilla of each 4 oz.- Lemon peel 1 oz- Musk 24 gr. Amber 20 grains reduced to a fine powder and thrown on to a Charcoal fire makes an excellent perfume.—

Receipt for the Cure of Cholera

1 oz. Cinnamon water. 1 gr. Ipecacuanha 35 drops Tincture of Opium. 1 D. Spirits Lavender 2 Drams Tincture Rhubarb- To be taken at once & the complaint will be instantly relieved. From the Bengal Chronicle—

To Cure the Tooth Ache

Take a probe that will enter the cavity of the tooth and lay it with a little tow which wet with a little Nitric Acid then put it into the tooth and be careful not to touch the gums or the adjoining Tooth. It seldom fails to give immediate ease.— It was discovered by mistake by Mr Thayers of Mowington Causeway London, & made public by Dr Rees Lectures Through the Courier of 8 July 18

Sage Tea for Cholera Morbus &c

Sir John Sinclair has just published a Pamphlet strongly recommending Sage Tea as a Stomachic and as an excellent remedy for the Sore Throat, the bite of Serpents and Cholera Morbus. He received very great benefit from it himself by taking about a pint a day drinking a glass occasionally.

Camphor for Cholera Morbus.

It is thought that Cholera Morbus is occasioned by insects which are imperceptible and which adhere to the skin & cloaths. Therefore Camphor being hateful to these insects as well as all others, Dr Hartmann prescribes the following receipt.

Take from Minims to minute a spoonful of Camphor dissolved in Spirits of wine and wiped with warm water.— Rub every part of the body with Camphor; and cover the Patient with a Blanket which has been Camphorated. Besides this let Strong doses of Camphor be taken in the Jalap decoction Dr H. is sure that no fatal result will arise if this regime be followed.—

Bone in Throat.

The average quantity of Bone in Butchers meat is 15 hundredth in the 100.—

Ringworm &c Cured

Wash with Vinegar & Water daily one part Vin: to 3 water.

Raw to Mix Paints.

White lead
Raw linseed oil & Turps:
Sugar of lead for drier

Black Paint

Mixed with boiled
Sugar of lead for drier

Dark Brown

Spanish Brown & Lamp black
Mix with boiled oil & Turps:
Sugar of lead for a Drier

Portland Stone Colour.

White lead — Turkey Umber
Red lead — Blue-Black
Mixed with

Lead Colour

Black and White lead Mix. with boiled

French Grey

White lead — Venician red
Blue-black &

Persian Blue

Mixed with Boiled oil

Olive Green with

Yellow Ochre — Persian blue
Oil

Blue Paint.

Persian blue & white lead
Oil

Putty

Whiting - Raw linseed oil

Population Returns. 1831

		as follows.
England	13.089.338	England 49.734.622
Wales	805.236	Wales 2.153.401
Scotland	2.365.807	Scotland 6.652.655
Great Britain	16.537.398	Total 58.551.078
London	1.474.069	
Females of G^t Britain	8.375.780	

The annual value of Real Property in 1815 was

Purging Pills.-

℞. Socotrine Aloes
Gum Scammony
of each equal parts, made
into a mass & divided into
5 grain pills.- Pills of this kind
I have taken for 2 years & find
them an excellent purge, one being
generally sufficient. The receipt
I got from Dr Wilson, Huntly Jany '36

Canadian Barm

Mix a pint & ½ of Boiling water with
1 quart of cold & a teaspoonful of Salt
in a tin vessel, then take one pint
out & throw it away, then stir in flour
till it is as thick as beer barm, blend-
ing it well: next set this vessel into
another with hot water in it, which
renew or keep hot by the fire, stir the
mixture often to prevent the flour
sticking to the bottom, cover it up closely
& if rightly done it will soon begin
to ferment. When it begins to rise
stir it no more but let it stand quietly
This process takes 4 or 5 hours. It will
be sufficient for 8 quarts of flour. The
dough should be mixed up with warm
water. Set it to rise in your pans
by the fire, which it often takes a
long time to do, when it has risen
to twice the former size it ready to bake.

To Correct Putridity in Rooms

Boil Myrrh or camphor with Vinegar & Sprinkle the room with it.

To Varnish Pictures or Paper written upon or not

Take Canadian balsom
Spirits of Turpentine
in equal proportions, and lay it on the paper in exactly the usual way; but which must be previously sized with Isinglas

On Early Crops

Sir H Davy found that a rich black mould containing ¼ vegetable matter increased in temperature by exposure to the sun for an hour from 65° to 88° Fah: and that a chalk soil under similar circumstances was heated only from 65° to 69° the former when removed to shade, cooled in ½ an hour 15° the latter only 4°

Hence crops on compact soils, especially if light coloured, are more backward in Spring & later in verdure in autumn, than on loose & black soils

Hence also soils for the earliest crops should be siliceous & dark coloured, or what is called black

sand, such planting must readily with the surplus wet, & becoming soonest warm, while on the contrary soils for late crops should be more aluminous, or contain a greater mixture of clay, as this absorbs moisture in summer from rain and dews, and retains it a longer time

Transplanting Evergreens

It generally recommended to be done in winter when a large frozen ball of earth can be removed with the roots, which prevents them being exposed to the air. — But when this cannot be done they should be transplanted considerable late in Spring, than common deciduous trees. — The best time is when the buds begin to swell, or when they are passing from a quiescent state to that of active vegetation — as it is then they are best prepared to supply by new roots any loss sustained by their removal. —

Farmers Account Book of

1st Draw a plan of your Farm, numbering each field, & colouring the lines of the fences

2nd Every evening before retiring

to rest entire in a day book the work done during the day charging the same to the field or fields it was done in, with such remarks on the work or weather as may be thought necessary Thus:

1835 No 4 Field

May 6 To 2 teams & drivers dragging in barley ——— $2.00

" 3½ bushels barley sowed — 2.00

" sowing same 2 bushels to the acre — 25

The N. East part of this field ploughed last fall, & the barley sowed, dragged in and rolled without further ploughing

Weather pleasant in fore noon — P.M. cloudy — frost this morning

3d During the long evenings of fall season Post these accounts into a ledger kept purposely for farm accounts & no other. By the close of the year have all posted up & footed. Then

4th carry these footings with descriptions, results, &c to the last leaf of the ledger for that year, & I have, as will be seen, the kind of crops on each field, the expenses of cultivation, the amt. of the crop, the profits of each field & the profits per acre &c

Recapitulation of Farm account for 1835

No of Fields	acres	Kind of Produce		Expences	Receipts	Profits	Profits per acre
No 1	14	Hay, wheat, & Corn	$	59.00	207.00	147.00	10.53
2	10	Hay		24.	153.	129.	12.
3	5	Hay					
4	8½	Corn, barley & beans					
6	6¼	Wheat					
9	4	Hay					
10	10	Wheat					
11	16½	Wheat, Hay & Oats					
Orchard	5	Fruit & Peas					
Fruityard	1¼	Potatoes & Corn					
Garden	½	Variety					
	81¼	acres	Total $	429.00	1719.00	1289.00	15.00 pc

Canada Thistle to Kill

But them close to the ground, first when about 6 inches high, which will be about June, with a hoe. This should be repeated three times more during the summer. The second time they will be found much more numerous but not so strong- The two last cuttings they will have to be sought for. To those who have fields fit for the plough- the following course is suggested — Sow thick with clover seed mow the first season for Hay — pasture the second, & follow with the hoe as long as a thistle can be found -

Ticks on Sheep to Destroy

Take Scotch Snuff, open the wool on the back of the sheep from head to tail, dust in a small quantity so as barely to colour the felt - do the same on the belly - pursue the same process by making a ring round the neck near the head, in front of the shoulders, behind the shoulders and round the body at the flanks The odor of the snuff will diffuse itself through the whole fleece and destroy the ticks in 3 or 4 days without injuring the sheep or wool. — A keppen box with

a conical head with 5 small holes at the point of the cap. — See also page 153

White-Wash to make

Take ½ a bushel of unslacked lime, pour on it a kettle full of boiling water; while the lime is slacking add 1 gal. of stale chamberlie; or 1 lb white vitriol or 1 lb salt when the lime is properly slacked dilute it with water to the proper consistance and add to this mixture ½ oz. of Prussian blue — This will give you a lasting wash that will neither peel off nor turn yellow — By increasing the quantity of blue you may make with a pale or dark blue. Yellow ochre or Red may be used

Cheap Paint see pp 48

Take 2 quarts of Skimmed milk
2 oz. fresh slacked lime
2 lbs whiting —

Put the lime into a stone vessel pour milk on it sufficient to make of the consistance of cream, then add the remainder of the milk Then crumble the whiting on the surface of the fluid & let it stand till it sinks — Stir it well before use — by the addition of any colouring matter you may make it suit your fancy — It should be put on with a brush. —

Fire-proof Wash to Whitewash

6 quarts lime (stone) slacked with
5 gallons hot water
5 quarts clean rock salt, to be
dissolved by boiling, & skimmed
1 lb alum
½ lb copperas
¾ lb of Potash gradually added
4 quarts of fine sand or hard wood
ashes say hickory

Add any colouring matter - & lay it on with a paint brush two coats, for outside

It is said to look as well as paint and be as lasting as slate will stop the small leaks, and render the part painted with it incombustible

Stucco Whitewash - Washington

6 quarts stone lime slacked with
5 gallons hot water
½ lb whiting or burnt alum (unripe) ful-
1 lb sugar
3 pints of rice flour made into
a thin & very nice boiled paste
1 lb clean glue, dissolved by
simmering over a slow fire

It is very brilliant and will last 50 years - It is well to add 3 quarts salt previously dissolved in boiling water - Any colouring matter may be added according to fancy. should be put on hot from a kettle in which it is boiled -

Forage Required to Winter Cattle.

1 Horse	2 tons	Hay	alone
1 Ox —	2 "	"	or
1 Cow	1½ "	"	Equivalents
12 Sheep	1½ "	"	

In Summer

1 Horse	3 acres	of good pasture	
1 Ox —	3 — "	—	"
1 Cow	2½ "	—	"
12 Sheep	2½ "	—	"

The only proper & profitable method of keeping Stock is to keep every animal, from the time of its birth onwards & at all seasons of the year in perfectly good order & in a thriving condition.

Feeding Calves

It is found that Calves may be fed on Skimmed Milk or whey- the milk should boiled & cooled down to blood warm; but they are more subject to disease

If they are purged give them a little rennet- if costive put liquor in which Mutton pork or bacon has been boiled.-

Locust Tree.-

A plantation of is very profitable- Will thrive well at one rod apart.-

Mouse Trap.

Invert a flower pot on a board sink it about ½ it depth in the ground. Suspend a small roller inside the pot about 2 inches below the hole by means of twine and the roller with lard or any attractive meath. Lay around the pot a little chaff. The mice will jump on the roller & fall to the bottom. This trap will catch many at a time without being reset. It is well adapted for gardens or Cellars

To Dress Butter of the Taste of Turnips, Cabbage, & Wild Onion.

To each half pint of milk put a quart of boiling water.

Grafting Wax

½ lb Tallow
1 " Bees-wax
2 " Rosin

} boiled & worked up as Shoemakers wax

To use it dip Strips of Calico from 1 to 3 inches in width accords to the size of the limb. When the branches are large apply the wax directly with the hands slightly greased. It will keep in ball 2 or 3 years

Observations in Canada 1857

Weight of Grain &c 145
per Bushel as by Law Established
in Canada

Wheat	60.	Bran	20
Rye	56.	Pease	63
Barley	48	Beans	62
Oats	34	Clover seed	60
Indian Corn	56	Potatoes	60
Buck wheat	52	Timothy seed	45
Onions	57	Salt	50
		Dried Peaches	33
		Do Apples	24

Insects, in a Garden to Destroy
Sprinkle the plants affected
with Simple water — Tobacco
water — Decoction of dwarf Elder —
Soap suds — Walnut leaves*, or any
bitter or biting herbs such as
Worm-wood — Pepper, Wood-ashes,
or water impregnated with Salt
Tar or Turpentine &c. Water heated
120° or dust them with Sulphur
or quick lime —

Lice on Trees may be
destroyed with the following
wash — 8 quarts water, 2 lb
Soft Soap mixed with quick
lime to make thick white-
wash, with this paint the
tree as high as convenient.
Or equal parts of rosin & oil mixed hot. —

* Camomile leaves — or the leaves
dried & powdered — also that nothing
Lands more to the health of plants
than Camomile growing about
a garden

Paint to Preserve Wood.

Melt 12 oz. rosin in an Iron Pot
Add 3 Gals: Train oil, and
3 or 4 rolls of brimstone; when melted thin add as much Spanish brown or brown ochre, ground fine, as will give the required colour. Lay it on with a brush as thin & hot as possible & it will preserve wood for ages – Two coats should be given. –

Foot Rot in Sheep to Cure

Equal parts of Sulphur, Tar & Tallow mixed together & applied to the diseased parts, after paring off the loose parts of the hoof.

Garget in Cows to Cure

When cows are neglected being milked or Stripped they will go dry and the udder will become hard & inflamed. Let a liniment be made of Camphor and blue ointment & the udder rubbed with it, and if the cow be feverish give 3 or 4 oz: salts occasionally –

Mange in the Head of Horses. to Cure

Hogs Lard 1 quart, Tar 1 quart, Sulphur 1 lb. boil over a slow fire till the sulphur disappears – rub the head once a day till done –

Smoot in Wheat to Prevent

The following Experiment was made by British agriculturists with great care, & is decisive.

Fourteen equal spaces of ground were sowed with the same seed & Heat as foul and black with smoot. Before preperation as wheat could well be.

No. of bed	Preparation when sown	Smoot ears
1	Without washing	377
2	Washed in clean water	325
3	" " Lime water	43
4	" " Lye of wood ashes	31
5	" " Arsenic	28
6	Steeped in lime water 4 hours	12
7	" " arsenic " 4 "	1
8	" " Lye " 12 "	12
9	" " " " 24 "	0
10	" " lime " 24 "	6
11	" " arsenic " 24 "	5
12	" " brine " 4 "	6
13	" " " " 24 "	3
14	washed in brine and rolled in quick lime	0

From this experiment it appears that from three of the modes of preparation there was no smooted ears in the beds. To steep or wash large quantities of wheat in brine is rather expensive; in Canada steeping in wood ashes (Lye of) and rolling in lime will be the best mode of preparation & cheapest.

Mouse Trap

Invert a flower-pot with a hole in the bottom 2 inches in diameter on a board or flat stone, and sink it in the ground until the bottom is level with the surface. Suspend 2 inches below the hole, by a wire, a smooth wooden roller which should turn freely on its axis. The surface about it may be sprinkled with chaff or short straw and grain or seeds, and the roller be rubbed with lard or other attractive substances. Upon this roller the mouse jumps, & it immediately turns by his weight, & precipitates him to the bottom, whence he cannot escape. Many may be caught in the same vessel without removing or resetting

Felon or Whitlow to Cure

Make a strong lye of hickory ashes, add a pint of beer & thicken with wheat bran, then grease the poultice & apply.

To Prevent Wounds from Mortifying

Sprinkle lump Sugar on them

A bitter taste wounds may be cured with sugar & a strong decoction of walnut leaves.

Oil Soap to Make

Take of white soap cut fine 2 oz: alcohol 1 pint. Oil of rosemary 1/4 oz: mix & set the bottle in the sun till the soap is dissolved - It is useful for removing grease spots. paint &c from cloth & silk: also in Strains, Rheumatism, Swellings &c.

Hydrophobia to Cure

1 oz of the jaw bone of a dog, burnt & pulverized.

Take the false tongue of a newly foled colt

1 scruple of verdigrese, - mix.

For an adult one common Tea spoonful a day - Give same after take the feelings of. In a coffee cup in a small quantity of water

Repeat this dose next morning fasting. This if taken before symptoms appear will effect a cure - But if after the symptoms shall appear - apply to a Doctor to administer the following.

3 drams of verdigrese

× 1/2 oz: of calomel - to be taken in one dose - If the patient be not relieved 4 hours after administer 4 grains of pure opium or 120 drops of liquid laudanum - use no thick

There is no danger in taking 1/2 ounce of calomel, as the verdigrese considerably neutralizes its effects -

To Cure a Cow Swollen by eating Clover -

Give one Gill of Turpentine in half a pint of water and She will have instant relief

Horses to prevent being teased by flies -

Infuse a handful of Walnut leaves for one night & next morning boil them for a quarter of an hour & it will be ready for use when cold - Before the horse leaves the Stable moisten a Sponge with the Liquid & Sponge between & upon the ears, the neck, the flank &c

Vegetables how to Pre-pare from Small Slugs or Worms.

Water cresses, in particular, Small Salads, Cabbages, Cauliflowers Broccoli, Celery, Lettuces, washed in a brine of Strong Salt & water will free them of all these insects, instantaneously if they lay about 10 Minutes in the brine

By Straining the brine after use it will last a long time.

Fr. Soranke Paladinus July 19/39

Hooping Cough

To Cure take a large handful Thyme picked from the largest Sprigs, boil well in a pint of the best white wine Vinegar strain, & add to the liquor 1 lb Sugar, then boil again till it becomes a Syrup, stirring to prevent sticking to the bottom. When cold bottle. One Tea spoonfull night & morning is a sufficient dose.—

Other Receipt.

A Teaspoonfull of Castor Oil to a Table-spoonful of Molasses - Take a teaspoonfull of this mixture between the cough is troublesome — It will afford relief at once & in a few days effect a Cure.

The same remedy relieves

The Croup.

however severe the attack.—

Eyes, Inflammation to cure

Pour boiling water on some Elder flowers, when cold add a few drops, 3 or 4, into a wine glass of the decoction and let a few drops run into the eyes 3 or 4 times a day - said to be a certain cure

Parsnip Wine

To every 4 lbs of Parsnips, clean & quartered, put one Gallon of water; boil them till they are quite tender; drain through a sieve, but do not bruise them, as no remedy would clear the liquor afterwards - Pour the liquor into a Jub & to each Gallon add 3 lbs sugar, lump, and ½ oz of crude Tartar. When cooled to the temperature of 75° put in a little new yeast; let it stand 4 days in a warm room of about 65°, then turn it - September or March is the best time - When the fermentation has subsided, bung down the cask & let the wine stand at least 12 Months before bottling -

Frosted hands & feet

Palm Oil is a certain Cure in a few days, and immediately relieves pain

Spectacles of any Power by Mr Solomons Bondstreet London Highly recommended by the faculty

Also Voice Conductors for Deaf persons, which are Invisible -

Blacking Waterproof

1 Pint of Seneca oil
1 oz. of Gum Elastic (India rubber)
cut into Shreds.
1 oz. of Lamp Black.

Mix & let it stand 3 or 4 days to dissolve, and it is fit for use. Rub it on both soles and uppers 3 or 4 times a bit. The leather will absorb no more, & it will be impervious to wet.

Ticks on Sheep

Wash in a tub so deep that the sheep cannot reach the bottom & wide enough at top to wash two at a time. The water kept slowly running over - Soap is used at the rate of 2 Gallons per 100 sheep, rubbing it on previously to washing - in a week or so after washing they are shorn. Now as the ticks may leave the sheep & go to the lambs we now wash & shear the Lambs - If this does not destroy them repeat the washing.

Lime your Orchard
& Kill grubs &c

Botts in Horses.

Give the Horse one quart of Molasses, or dissolved Sugar, in a quart of sweet Milk, and 30 minutes he will have case - then give 1/8 oz. of powdered Alum, in any way - In 2 hours after give 1 lb of Salts This is said never to fail. —

Nettles use of

When young make excellent greens

1 pint of the weak Infusion taken daily acts as an Alterative & Deobstruent in Impurities of the Blood.

1 pint of a Strong Decoction taken daily, proves an admirable Strengthener in general or Genital Relaxation

Applied as a fomentation it relieves swellings and abates Inflammations —

A Poultice of - has the same effect —

The expressed juice taken in spoonfuls, as may be required in internal bleedings is the most powerful Styptic known.

Paint for a Garden fence

Melt over a slow fire in an Iron pot 2 lbs of Rosin and 1 lb of soft Brimstone, when liquid pid, add slowly 3 gallons of Train, or fish oil, and when incorporated add Spanish Brown Venetian Red or Yellow ochre or any other dark colour till of sufficient consistence to lay on with a brush - Use it warm and give two Coats. When dry (which it will be in 4 or 5 days) it is proof against weather - It will do for Outhouses &c &c

Chimneys to prevent taking Fire also the accumulation of soot.

A Case containing a number of sheets of wire gauze is introduced into the Chimney a little above the Fire. No flame can pass through the gauze, and as the gauze has a cooling tendency, all the flame or carbon which may ascend is stopped by the Box or Case; and soot thus prevented from accumulating in the Chimney - This apparatus may be equally applied to Stove-pipes. The cost in England 5/.

27th Nov. 1842

Grease Spots to take out

Take the yolk of an Egg and put a little on the spots then place over it a piece of white linen, and wet it with boiling water; rub the hand over the linen three or four times, each time applying fresh boiling water, the linen is to be then removed and the part thus treated, to be washed in clean cold water.

Hydrophobia to cure

1 Pint of vinegar (white wine) three times a day.

Flour Albus or bearing down of the Womb

Oil of sweet almonds, two parts
Balsam Copaiva, one part
Sweet Spirits of Nitre, two parts
Spirits of Turpenture, one part.
A Tea spoonful in a wine glass of warm milk three times a day, to be taken on an empty stomach
After having taken the above mixture take the following
Columbio Root Gentian Root Chamomile flowers and fennel seed to an ounce of the powder add a Quart of Port Wine, a wine glass to be taken three times a day also

apply an adhesive plaster to the back.

Manners of Men

Always suspect a man who affects great softness of manners, and unruffled evenness of temper, and an enunciation studied, slow and deliberate. These things are all unnatural, and bespeak a degree of mental discipline unto which he that has no purpose of craft or design to answer, cannot submit to drill himself. The most successful knaves are usually of this description, as smooth as oil, and as sharp. They affect the innocence of the dove, which they have not, in order to hide the cunning of the serpent which they have.

Certain Cure for Corns

1 Tea-spoonful of Tar, 1 Ditto of Brown coarse Sugar, ditto Saltpetre. The whole to be warmed together, and spread on kid leather the size of the corn, in two days it will draw it out.

To cure a wart -

Scrape a carrot fine and mix with the salt - apply as a poultice five or six nights.

Fire in Chimneys to Prevent

In France Three frames of Wire-work placed one foot above each other, near the base of the chimney has been found to prevent fires in chimneys as no flame will pass through them. Montreal Gazette 17 Dec 1847

The gage for the safety Lamp is 40 to the inch and of Iron or Copper, and 30 in the warp & 16 or 18 in the square inch - If of plane wire gauze the wire should not be less than one-sixtieth of an inch in thickness and from 28 to 30 in the square inch both warp & woof -

But as there are to be 3 gauze in the chimney perhaps coarser might do -

Cement used in Algiers

It is composed of 2 parts of Ashes, 3 of Clay and 1 of Sand mixed with oil (supposed Linseed) will resist the weather and become hard as Marble, and will stick to wood or Stone – It is called by the Moors Jabbi –

Comparative Value of Food

It has been stated that 107 parts (or lbs) of Wheat 111 of Rye, 117 of Oats, 130 of Barley, 138 of Indian Corn. 177 of Rice, 895 of Potatoes 1335 of Turnips are equal in nutritive power: from the Pascoll Telegraph Newsp. 19 Jany 1848.

Chloroform

Is a anesthitic – a medicine which takes away the sense of feeling and is now used with much success in Surgical operations and is inhaled from an handkerchief as is Eau-de-Cologne, and is more efficacious than Ether and less expensive –

And

And it is manufactured as follows by S. S. Lyman & Co Montreal.

Take of Chloride of Lime four ounces Alcohol one ounce, Water 12 oz. Mix in a capacious retort and distil with a moderate heat - Two fluids come over, one of which oily and heavier than the other collects at the bottom of the receiver properly adapted to the retort - This is the Chloroform and requires to be separated by, in the first instance, a decantation of the supernatant fluid, and to be purified and rectified; in the second by a re-distillation from Chloride of Calcium - The quantity thus obtained is small - The economy of its manufacture is in using large quantities of Material -

Cheap paint

An excellent and cheap paint for rough wood work is made from 2 1/4 pounds of melted pitch one pint of linseed oil and one pound of yellow ochre -

J. Wilson Jun

Cholera, by the London
Board of Health. Oct 1st 1848.

Cholera not contagious —
proved by evidence from all countries — Quarantine abolished through
Europe. But crouded Hospitals, Low,
Damp & ill ventilated & dirty houses
favour its spread — sinks. Privies.
Cess-pits & dung-pits should be
carefully attended to —

The first symptoms of Cholera
is looseness of the bowels which may
be accompanied with slight pain, but
not always, and for some hours, even
days this bowel Complaint may be so slight
as to appear trifling, and might escape
notice by those not aware of the danger.
Therefore the slightest degree of looseness
ought to be treated as the commencement
of the Cholera which at this stage may be
arrested by simple means, but if neglected
for a few hours may assume a fatal form.

Medicine - The following among the most useful Viz. 20 grains of opiate Confection mixed
with 2 table spoonful of peppermint water &
repeated every 3 or 4 hours, or oftener
if the attack is severe, until the
looseness is stopped —

Or — 1 ounce of the Compound chalk
mixture, 15 grains of Aromatic confection and

from.

5 to 10 drops of Laudanum if the attack is severe, added from ½ a dram to 1 dram of tincture of Catechu — to be repeated as the first.

Half these doses to persons under 15 years old and a quarter to infants —

These remedies should be repeated night & morning for some days after the looseness is stopped, a tea spoonful of common salt is recommended to be taken with every meal. — But in all cases send for a Doctor as soon as possible.

Diet. Should be solid rather than fluid, as animal food. as

Avoid salts (Glauber. & Epsom) Seidlitz powders, Senna, Colecynth & aloes.

as affording the most concentrated and invigorating diet — Well Baked Bread (not new) Rice, Oat-meal and good Potatoes.

Avoid Pickles & every variety of green vegetable whether Cooked or not, as Cabbage. Cucumbers and Salads — also all kinds of fruit, though ripe or even Cooked & whether dried or preserved — Avoid Salted & smoked meats. Pork, Salted and shell fish, likewise Cider, Perry, Ginger Beer, Lemonade and Liquors of all discriptions & ardent Spirits.

Great moderation both of food & drink is absolutely essential to safety during the epidemic

The intervals between the meals should not be long. —

Clothing — Wear flannel next the skin and go warmly clothed — and a flannel bandage round the waist is recommended to be worn during the day — And the feet should be kept warm and dry & the clothes changed if wet.

If notwithstanding these precautions — a person is seized suddenly with, cold, giddiness, Nausea, vomiting & cramps, & when medical aid cannot be instantly procured, get immediately into bed & apply warmth by heated flannels, & bottles filled with hot water to the feet & along the spine, rub the extremities well, apply a poultice of mustard & vinegar to the stomach for 15 or 20 minutes, And take every ½ hour a tea spoonful of Sal-Volatile in a little hot water, or a dessert spoonful of brandy in a little hot water.

THE CRIMEAN WAR.—A recent document published by Parliament shows that the total number of British troops landed in the Crimea during the war was 82,901, of whom 18,827 were killed in battle or died from disease. Besides these, 11,374 are returned as having been disabled—making the total loss 30,301 during a period of 18 months. The total cavalry was 6,820, of which the loss in dead and invalid was 1,587:—the total artillery was 8,944, and the loss 2,256. The total number of officers killed in all was 157, and 579 were wounded.

164)

Rheumatism.

The following Lotion has cured many severe cases of rheumatism-

4 oz. Spirits of Wine
2 oz. Camphor
1 oz. Compound Lavender
1 oz Tincture of Myrrh
2 drams Oil of Oregan!

Rub the parts affected well two or three times a day

Recd from Capt. Smyth
London 22 Jany 1849. JH

Knives to Clean

Charcoal, Ground to Powder is the best thing ever known to clean Knives. Jan 7 '49

Debt National to Pay

Say the Debt is 800,000,000 and that the value of realized property in England is 220,000,000- 25 years purchase on this would be 5,500,000,000 - 10 per cent on this sum would produce 550,000,000 Leaving only 250,000,000 the Interest of which at 3 per cent 7,500,000 & the annual expenditure 16,500,000 = 24,000,000 and this sum might be raised

as in the year 1848 by Custom and
Excise duties on Spirits —— £7,500,000
Tobacco ½ the present duty —— 1,500,000
Sugar ½ —— do —— —— 3,000,000
Wines, the lowest duty —— —— 2,000,000
Legacy duty on personal property 2,000,000
—— do —— —— on all other property 1,500,000
Land Tax, unredeemed, —— —— 1,200000
Stamp duty less than ½ of 1848 3,000,000
Post Office Nil — Sea at ½ pr ℔ 3,000,000
Total £24,700,000

Supposing a person possessed of an income of 1000 a year. This valued at 30 years purchase = 30,0000 and the quota to pay off the Debt would be 1,500 which at 4 per cent would be 60£ per annm. Supposing he had to borrow the money — And he now pays 60£ a year of Taxes on 3 articles alone viz

Income Tax at 3/p. £. —— £30
Assessed Taxes —— —— 20
Window Tax —— —— 10
Total £60

all these Taxes would be abolished, the debt being paid

Dysentery to Cure

Prepared chalk ---- 1 Dram
Ginger in powder --- 1 "
Oil of Cinnamon -- 2 Drops
mixed with the powders and
divided into 8 doses -(Say" Robinson
one very 2 hours if req?

Cholic to Cure

Tincture of Camphor 1 Dram
—Do— Opium 1 "
—Do— Rhubarb 1 "
Mix.. Dose 18 drops, on Sugar
Repeat every hour if necessary

Eye Water

Rose water —— 2 oz.
Sulphate of Zinc 2 Grains
To be dropped into the eye 3 or 4 times
a day, and wash the eyes
frequently with the following
mixture

Water, soft — 4 oz.
Sulphate of Zinc 4 Grains

If the inflammation be severe
put 2 grains of Zinc to 1 oz of Rose water

Bitters to Make

Gentian root sliced thin 2 Drams
Orange peel — " — 2 "
Lemon peel, fresh — 4 "
Boiling water 1 pint
Tincture of Gentian ½ —
—Do— —Cardamon ½ "
Dose 1 to 2 ozs: or a wine glass

Pain Killer an Excellent remedy for Dysentry, Colic and Pains of all kinds -

Tincture Capsicum -- 2 oz -
" Camphor -- 1 "
" Opium -- 1 "

for dysentry or Colic take a tea spoon full in sugar & Water, for pains rub the part affected - When taken inwardly repeat the dose 3 or 4 times, if necessary, at intervals of an hour - For children half the above quantity It is sold as Davises Pain Killer. I have proved this to be an effective cure for Dysentry on myself & several others, also for a pain in face from cold in the Teeth. -

Tooth Wash

Borax ---------- 2 oz
Boiling Water ---- 3 pints
- before quite cold add
Myrrh 1 teaspoonful &
Spirits of Camphor 1 Table spoon-
full - A small wine glass
full is sufficient for one appli-
cation, added to a little water
Tooth Powder - Burnt Alum -
also Charcoal & Honey

Damp Walls

To prevent the damp coming through walls, Wash the damp place on the wall with the composition used for brushing over the Knots in boards previous to painting

Chimneys, Smoking to prevent

Build the throat small, for two feet above the throat make it twice the width or size, and then contract to the width it is to be carried to the top, and it will never smoke.

Builder 6 Apl 50

Stoves to Clean

Make a weak Solution of Alum water & mix British Lustre with it, 2 tea spoonful to a Gill with which brush the Stove when cold.

Anodyne Anti-Rheumatic Draught.

By Dr Fisher
Rue Street

Acetate of Morphia 1/2 a grain.
Compound Tincture of Camphor One Drachm
Wine of Colchicum 50 drops.
Sweet Spirits of Nitre 70 drops
Water enough to make an ounce Draught. — This draft gave me relief in 1/2 an hour when in great pain F. Wilson

Gargle for Sore Throat

Argentum Nitras

15 Grs: to 1 oz soft water.

Cough Mixture

1 oz Syrup of Poppies

1 " Sweet Nitre

120 Drops of Hydrocyanic wine

Another

Oil of Spike 10 drops, on Sugar occasionally

Another

2 oz Liquorice root boiled in 1 quart of water to 1 pint

1/2 oz Antimony wine

1/2 oz. Paregoric

1/2 oz. Syrup of Squill — Emery Arthurs

Moths

A small piece of Linen dipped in Turpentine & put into the drawers or wardrobe for a single day, once or twice a year, is a sufficient preventative against Moths. —

Caterpillers

Three drops of Common Lamp Oil put into the nest will kill them.

Consumption to Cure

Take 8 grains of Phosphate of Lime three times a day with or without Cod-liver oil given by Professor Stone of N. Orleans Scientific American 8 Nov '51

A young man cured part gone in Con- Boston Med. Journal 3/52.

Asthma to Cure

Take 8 grains of Hydrate of Potass every four hours in severe cases- by

J H Dean M.D.

Sci American 8 Nov '51

Cholic caused by Lead, to Cure

Take 2 drams Nitrate and 30 of Laudanum in one or two pints of Barley water during the day (not in one drink) by M Bracket of Paris Sci American 8 No '51

Snake's Bite to Cure

Apply Tobacco juice moistened with Saliva- Several persons bitten by the Copper head Snake said to have been cured

S. A 27 Dec '51

Toothache.

2 parts brown Sugar, 2 parts Tar and 1 part Black Pepper made into the past & put into the tooth has cured several persons

S. A. 27 Dec '51

Cough to Cure

Either in man or Horse

4 oz Juice of Liquorice
4 " Liquorice Root
2 " Salt Peter
4 " Salt of Tartar
8 " Good Raisins
2 " Aniseed
2 drams Saffron

Boil together in 6 quarts Water for Half an hour - Strain - and give to a Horse 1 pint 3 or 4 times a day - to a Man 1 table Spoonfule - It is said to be good for Colds, Coughs, Hoarseness and Fevers - It is kind in its operation Opening the Lungs & Bowels & works gently on the system - Extracted from the Agriculturest Page 185 Aug 1851

Milk - taste of Turnips to prevent

Feed the Cow with Turnips just after milking morning & night and at other times with Hay

Scientific American 17 Jan 52

Stains to take out of Wood

Take Spirits of Salts 6 parts
Salt of Lemon 1 " Mix

Drop a little on the Stain & rub till it disappears

Colours to Set

Dissolve one Table Spoonful of Gall in a Gallon of warme Water and wash the article, Cotton or other goods in it without Soap.-

Moths & Perfumes for Clothes

Take Cloves 1 ounce
Cedar 1 "
Rhubarb 1 "
Pulverize and Sprinkle in Drawers

Cream to make rise

Dip two Milk pans in boiling water, put the Milk in one and Cover with the other,

Apple Sauce to make

Boil new Sweet Cider to the thickness of Cream - Cut in your apples, Cover & boil till tender, and then add Molasses to taste

Pumpkin Bread

Boil a pumpkin in Water till it is thick, then add flour to make dough

Biscuit Soda

Take 1 quart water 1 Tea Spoonful of Salt, 2 of Cream of Tartar & 1 of Soda or Saleratus

Paint, Cheap

For Rough Woodwork

Take 6 lb. Melted Pitch
1 pint of Linseed oil
1 lb Yellow ocher

Soap Shaving to make

Take 4½ lbs white bar soap cut into slices
1 quart rain water
1 gill of Beefs gall
1 Gill Spirits Turpentine

Boil 5 minutes – Colour with vermillion
Scent with oil of Roses

How to make hay always

Keep them from the Cock and give to each ½ oz of Chopped fresh meat when there are no worms – allow no meat egg – Keep them warm and it is said they lay all winter.

Skins to Cure, Sheep or Others

Take 1 Spoonful of allum
2 — " — Salt petre
pulverize & Mix – then Sprinkle on the flesh side of Skin – lay the two flesh sides together – fold up the skin tight & hang it up in a dry place – In 2 or 3 days it will be dry, then take it down & scrape it with a blunt knife till clean and soapsuds

Burns to cure

Cover the part with wheaten flour so as to exclude the air

Poison Antidote for

Instantly take an Emetic, say a dessert Spoonful of made Mustard in a tumbler of warm water

Butter taste of Turnips to prevent

Feed the Cows in the morning & Evenings, with Turnips, just after Milking and at no other time and this said that the Milk and Butter will not taste of Turnips

Marble Cement

Take Plaster of Paris & soak it in a Saturated solution of Alum then bake the two in an oven, after which grind to powder, & use as required. It sets into a very hard composition capable of taking a very high polish - It may be mixed with any Coloured mineral to resemble Marble

Cement to mend Earthen & Glass Ware

Melt Shel-lac & draw it out into Sticks. To use it heat the article a little above boiling water heat and apply a thin coating of lack to both surfaces of the broken vessel.

Colds or Catarrah

Sr Astley Cooper attributes his freedom from Colds by Sponging the Body every morning with Cold Water and early rising, and when he happens to get a Cold he

Cures it by taking one Grain of Calomel Combined with four grains of Coxthaatic extrac which he took at night, and about two hours before he rose the folling morning he took a basin of hot tea in order to excite a freeperspiration.

Another method by Dr Graham

If the cough be troublesom

Take 4 Grains of Ipecacuanha in Powde

2 drams, Oxemel of Squills

1 " Sweet Spirit of Nitre

2½ oz Spearmint water

1½ dram Syrup of Orinje peel

mix. & take a table Spoonful 4 or 5 times a day

Toothache

Gum Copal dissolved in Chloroform forms an Excellent Compound for Stuffing the holes of decayed teeth First clean out the cavity and then dip a little cotton into the solution and introduce it into the decayed part and it never fails to give immediate relief. Sci American

6 Mar 1852

Measures for Corn

Square dimentions of Boxes for Corn -

1 Barrel =	24" in long	16" Broad	28" deep =	10752" cube
1/2 Do	24	16	14	5376
1 Bushel	16	$16\frac{8}{10}$	8	$2150\frac{4}{10}$
1/2 Do	12	$12\frac{2}{10}$	8	$1075\frac{2}{10}$
1 Peck	8	$8\frac{4}{10}$	8	$537\frac{6}{10}$
1/2 Do	8	8	$4\frac{2}{10}$	$268\frac{8}{10}$
1/2 Gallon	7	4	$4\frac{8}{10}$	$134\frac{4}{10}$
1 Quart	4	4	$4\frac{2}{10}$	$67\frac{2}{10}$

Bleeding from the Cavity of a Tooth

To Stop. Stop the hole from which the Tooth has been extracted, firmly with Cotton Steeped in a Strong Solution of Alume.

Cockroaches to Kill.

Strew the floor for 3 or 4 nights with cucumber peel - The Cockroaches suck the juice & it poisons them. Agricul: 1852

Tea Cakes to make

Take 2 lb Flour, 1/4 oz Bi-carbonate of Soda 2 oz. Sugar, 2 oz. Butter, Sour buttermilk 1 pint, mix well & make up the dough with the milk Agriculturist 1852

Buttermilk good for

Consumptions and fevers, hoarseness, Sore throat, Constipation of the bowels, and is an excellent cooling drink. Agricul: 52

Consumption & Asthma.
Rheumatism, Chronic. also Piles & Coughs

Sulphur is an alterative and diaphoretic and is very serviceable in the above complaints, and Dr Graham thinks it is so from its mild laxative effects; but if Consumption be attended with acute inflamation it should not be given

Its dose is one or two drachms taken in Milk — Or an Electuary may be made by mixing together

3 drams Sulphur, — 1 dram Cream of tarter & 4 drams of Lenitive Electuary

The Lenitive Electuary is made in the following manner

Lenitive Electuary

Take 4 oz. best Senna Leaves finely powdered
1 lb. pulp of prunes
¼ lb. pulp of Cassia
3 oz. pulp of Tamarinds
1½ pint Treacle or simple Syrup
2 drams of Essential oil of Carraway

Boil the pulps with the Treacle or Syrup to the thickness of honey, then add the Senna & when nearly cold, the oil of Carraway, finally mix the whole thoroughly together

This Electuary is of itself a pleasant & efficient and may be used as such in all cases of costiveness – But when united with equal quantity of Sulphur (flowers of) it forms one of the best remedies for Piles now known –
Sec. Dr Grahams Domestic Medicine 1835

An excellent Pill for the Rheumatism
20 Grains Calomel – 3 grains Emetic Tartar
1 Dram Resin of Guaiacum, in powder
Rub them in a Mortar for 10 minutes & then make them into a mass with a Conserve of hips, and divide into 20 Pills –
The Chelsea Pensioners Nostrum by which Lord Amherst was cured of Rheumatism
1 dram Guaiacum – 2 drs. Rhubarb in pow.
1 oz. Cream of Tartar – 2 oz. Flowers of Sulphur
1 Nutmeg finely powdered which are to be made into an Electuary with 1 lb honey
2 large Spoonfuls to be taken night & Morning
Dr. Graham

Hair Oil to Mix

Take 1 pint Olive oil heat it to 200° in a pan (not Iron) add ½ oz of Pearl-ash. Stir well for 10 Minutes, let it cool & then filter. Sci Am. Mar 27/52

For Chronic Rheumatism Spasms & Palsied Limbs.

Take 1½ oz Strong Liniment Ammonia
1 oz Oil of Turpentine
1 oz Spirit of Camphor
4 drams. Castile Soap.

Paint of Hydraulic Cement.

Hydraulic Cement (Water Lime) mixed with oil makes a first rate Anti-Combustible and excellent water proof paint

To Soften Hard Water

Put ½ oz. quick Lime into 9 quarts water & the clear solution put into a Barrel of Hard water (36 Gals) the whole will be soft water as it settles.

Or

Put 1 oz Salt of Soda to 3 Gallons of Hard water, previously dissolving the Soda in a little warm water.

Scientific American 1/8/52

Let it Settle 4 or 5 hours

For Vomiting combined with Dysentary

Tincture of Camphor or Paregoric Elixior

one tea spoonf

Spirit of Ammonia, Aromatic 10 drops

To be mixed in a wine glass of water & taken every ½ hour till the vomiting or purging ceases, and afterwards 2 grains of Calomel Concta, that Calomel & Chalk, every 4 hours.

Given to Mrs Robinson & Children

Rheumatism to Relieve

Take 1 oz Ginger, 1 oz Bl: Pepper

1 " Mustard, 1 " Sulphur

2 " Honey 1 Quart Beer

or Bottle Port wine

dose 1 tablespoonful

Ink for Steel pens.

Tak 5 lb Log wood from Campeachy

Boil it for about 3 hours in 3 quart, to 1 quart of water (soft) then add 3 oz of Chromate of Potassa dissolved

There is no acid in this Ink

Sci. American 1853

Hair Oil To Clean

Take 1 pint of Olive Oil
Heat It to 200° In A pan
Let from. add half oz of pearl Ash
Stir for 10 minets. let It Cool &
then filter It

Varnish, Elastic, for Leather

Take 2 oz resin - 1 oz India Rubber and
heat them in an earthen ware vessel
until they are fused together, then add
a little boiled Linseed oil, and
Stir it till cold Send. A. 4/2/54

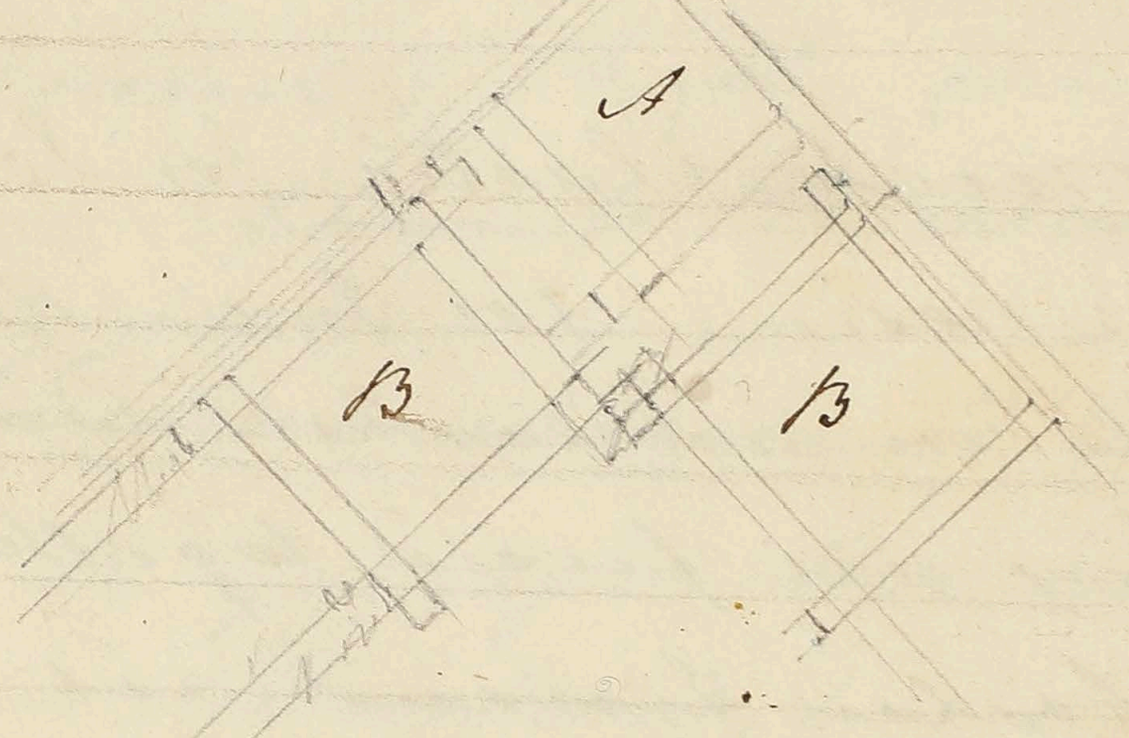
Light & Infinite Space

Light although it travels at the rate
of
a flash of light occurring on the earth
would be seen on the moon 1¼ seconds after.
On the Sun in 8 minutes, on Jupiter when
at the greatest distance in 52 minutes
On Uranus in 2 hours, On Neptune in
4½ hours, On the Star Vega (1st Magnatude)
in 45 years, on a Star of 12th mag[e] in 4000 years

Harrow, Improved

The inventor Wm B Ramsay of Strabane Co Pa or Gill Ramsay N York received the Prize of 100 ℔ at the Worlds fair N. Y.

The Harrow A is 2 ft square, inclusive, and B B 2 ft 3 in within - C C & D are joint, made of hooks & eyes, working similar to the universal joint



This arrangement of joints & parts is said to give freedom of motion to enable the implement to accommodate itself to uneven surfaces

Scif A 18/2/54

Itch to Cure — Ointment for

Take Sulphur, —— 2 drams
Bay-berries, in powder — 2 drams
Sulphate of Zinc 2 drams
Essence of Bergamot 20 drops
Olive oil sufficient to make the
mass into an Ointment —
To be rubbed on the parts affected
every night & washed off in the
morning — This ointment is said
to be very effective & safe by Dr. Graham
p 573

But when it is impracticable to
use it the following Lotion is recom-
mended
Take of Muriated Quicksilver 1 Dram
Water — soft — 1/2 pint
Crude Sal ammoniac 2 drams
Purified nitre — 1/2 ounce
Mix — The hands to be washed
with this solution night & morning
also the parts affected — A warm
Bath every other day should be taken
And when the constitution has been influenced
the following Aperient
Epsom & Glaubers Salts each 1/2 ounce
Spearmint water —— 5 1/2 "
Antimonial wine — 2 drams
Tincture of Senna —— 1/2 ounce
dose 2, 3 or 4 Table spoonsful

Woolen & Cotton Mixed Goods

Cotton can be detected by submitting a small strip of the cloth to the action of a small quantity of Sulphuric acid Mixed with very hot water – The acid will discharge the colour from the Cotton but not from the wool

Scientific Am Apl '54

Measures for Corn dimentions of

A Box 26 inches by 15·2 inches and 8 inches deep will hold a Bushel

A Box 12 by 11·2 inches and 8 inches deep will hold 1/2 bushel

A Box 8 by 8·4 inches and 8 in deep will contain a peck

A Box 8 by 8·4 in and 4·2 ins deep will hold 1 Gallon

A Box 7 by 8 in 5/8 in deep will hold 1/2 a Gallon

A Box 4 by 4 in. & 4·1 inches deep will hold 1 quart

Cholera

Take 2 or 3 tea spoonfuls of Magnesia mixed in water as soon as purging or vomiting comes on — Doctor Daniel says he has used it with great succes

19 Aug 1854

Disinfecting of Putrid, Noxious Gasses. & Privies——

A simple, cheap, and easy way of disinfecting putrid, noxious, fœtid and mephitic gasses, and putrid animal matter, may be accomplished by the free use of soda ash and quick lime. Dissolve twenty-five pounds of soda ash in five buckets of boiling hot water, and while hot slake twenty-five pounds of quick lime, and as soon as slaked, (which, if the lime is good will not exceed five minutes,) mix the fresh slaked lime while hot with the solution of soda ash, stirring it thoroughly for five minutes, by which time the lime will have taken up the carbonic acid of the soda ash; then pour the hot mixture into the privy vault, and it will in a few hours convert the impure and feotid gasses, into ammonia, and entirely divest the premises of any unpleasant effluvia, and render the atmosphere perfectly salubrious and healthy. Soda ash of 80 per cent free alkali is sold at the soap houses at three dollars per hundred pounds, and Athens lime can be bought at 75 cents per cask.

Every practical chemist knows that putrid animal matter can be converted into ammonia by the mixture, (in a heated state) with the caustic alkali. Such is the process, and such the result in the case.

In large vaults a greater quantity than 25 pounds is required; the quantity should be increased in proportion to the size of the vault.

The use of one hundred pounds of soda-ash per annum, in a vault, prepared and used as directed above, will prevent accumulation, and render the services of a scavenger wholly unnecessary.

Bilge water may be purified by the same process.

This preparation is more economical than chloride of lime—is fifty times more efficacious, and ten thousand times more healthful.

I have used this preparation for more than twenty years, with the most complete success.—*New York Courier.*

CANDLES.—Take two pounds alum for every ten pounds tallow, dissolve it in water before the tallow is put in, and then melt the tallow in the alum water with frequent stirring. This will clarify and harden the tallow so as to make most beautiful candles, either for summer or winter use.

HOW TO MAKE YOUR OWN YEAST.

TO THE EDITOR OF THE TIMES.

Sir,—As you have succeeded in giving instructions to your readers how to grind their own wheat, and where to get an oven to bake it, to render your services complete I send you the following recipe for yeast. The new system will be incomplete without it. That the housekeeper may be independent both of the brewer and that compound called German yeast, I will give it you in plain language:—

Monday morning boil 2oz. of the best hops in four quarts of water for half an hour; strain it, and let the liquor cool down to new milk warmth; then put in a small handful of salt and half a pound of brown sugar; beat up one pound of the best flour with some of the liquor, and then mix all well together.

On Wednesday add three pounds of potatoes boiled and then mashed, to stand till Thursday; then strain it, and put it into bottles, and it is ready for use. N.B. It must be stirred frequently while it is making, and kept near the fire.

Before using shake the bottle well up. It will keep in a cool place for two months, and is best at the latter part of the time.

The beauty of this yeast is that it ferments spontaneously, not requiring the aid of other yeast; and, if care be taken to let it ferment well in the earthen bowl in which it is made, you may cork it up tight when bottled. I put mine into Seltzer-water bottles, and this quantity fills four. I have used it now for many months, and never had lighter bread than it affords, without any failure.

Yours, &c.,

D. S. V.

RIPE TOMATO PICKLES.—Select handsome sized potatoes, wash them and prick them with a fork; lay them in dry salt twenty-four hours, then soak in equal quantities of vinegar and water for 24 hours; then take them out and lay them down in a crock, with sliced onions—first a layer of tomatoes, and then onions, with cinnamon, cloves, and brown sugar, and then cover the whole with good cider vinegar.

BREAD, CHEAP AND GOOD.

Nov 1855

TO THE EDITOR OF THE TIMES.

Sir,—A letter in *The Times* of Tuesday gives directions for making such yeast as is commonly used in Carlisle. I now send you a formula for bread which is extensively consumed in this neighbourhood; and as by it bread of a superior quality can be produced at 7½d. the quartern loaf, its adoption at the present time may be of much advantage to the community. The peculiarity of this bread consists in its being composed in part of Indian corn flour, which will be seen, by the following analysis by the late Professor Johnston, to be much richer in gluten and fatty matter than the flour of wheat, to which circumstance it owes its highly nutritive character:—

	English Fine Wheaten Flour.	Indian Corn Flour.
Water	16	14
Gluten	10	12
Fat	2	8
Starch, &c.	72	66
	100	100

The receipt is as follows:—Take of Indian corn flour half a stone (7lb.), pour upon it four quarts of boiling water, stirring it all the time; let it stand till about new-milk warm, then mix it with a stone of fine wheaten flour, to which a quarter of a pound of salt has been previously added. Make a depression on the surface of this mixture, and pour into it two quarts of yeast, which should be thickened to the consistence of cream with some of the flour; let it stand all night; on the following morning the whole should be well kneaded and allowed to stand for three hours, then divide it into loaves, which are better baked in tins, in which they should stand for half-an-hour, then bake. 32lb. of wholesome, nutritive, and very agreeable bread will be the result. Cost—

	s.	d.
A stone of best wheaten flour	3	6
Half a stone of Indian flour	0	10
Yeast	0	4
Baking	0	4
Total	5	0

This, divided by 32lb., or eight quartern loaves, gives 7½d. per quartern loaf at the present price of flour.

For several weeks this bread has been exclusively employed in my family, and is now as generally approved as when it was first substituted for that made of wheaten flour alone.

Carlisle, Nov. 21. H. E. A.

P.S.—It is of importance that the flour of Indian corn should be procured, as Indian corn meal is that which is commonly met with at the shops, and the coarseness of the husk in the meal might to some persons be prejudicial.

THE USE OF INDIAN CORN.

TO THE EDITOR OF THE TIMES.

Sir,—I have no doubt that had "Le Grand Chef" returned from the Crimea he would ere this have suggested through your columns some means of cheapening food at the present high prices. Certainly the letter in your Saturday's paper would have caused him to do so. In his absence I therefore presume to request your insertion of the following, to prevent any mischief that may arise from making bread according to the recipe of "H. E. A."

One of the motives of my mission to Ireland, in conjunction with M. Soyer, during the famine in 1847, was to show the people how to use Indian meal, which, as they then used it, was killing them by hundreds. The publicity which has since been given to the proper mode of using the meal and flour by Liebig, Soyer, and others, should, I think, have been sufficient.

The recipe, as given on Saturday, if used for any length of time by those partaking of little animal food, would produce diarrhœa, whereas, if it is used properly, it would give more bread from the same quantity of flour.

To 1lb. of Indian meal, or flour, add 6lb. or three quarts of cold water (soft), and stir it well up; let it settle, remove all which floats on the top; this is *silica* or flint, the husk of the corn; it undergoes no alteration in pannery fermentation, and which produces laxity, and ultimately diarrhœa; it should then be boiled for four hours, if possible by steam, or one pan inserted in another containing water, which will prevent its burning to the bottom. If the meal is good, it will have absorbed all the water that has not evaporated, and have become a thick porridge (meal, the produce of the Southern States of America, will take one-fourth more water than the produce of Europe).

By this process the gluten and starch become dissolved, and amalgamate better with the flour. From the quantities named by your correspondent I have this morning produced 38lb. 7oz. of bread, instead of 32lb. Meal, which is easier to be obtained, and cheaper than the flour, by this process makes equally as good a bread.

But, Sir, there is another process of making cheap bread, which would be more liked by the majority of your readers, than that of "H. E. A." It is as follows:—

Take 1¼lb. of good rice, such as clean Bengal cargo, Patna, Arracan, &c., at about 21s. per cwt. (it is best to try it by boiling two ounces in one pint of water, for half an hour; when cold, it should be quite a firm substance, and weigh 12 ounces.) Great difference exists in rice; for this purpose I generally find the cheapest the best. Boil the 1¼lb. of rice in 10 quarts of soft water for at least 30 minutes, keep stirring it, then pulp it through a coarse horsehair sieve; it ought, when cold, to weigh 7½lb.; then mix it with the flour, and make bread in the usual way, using two ounces of German yeast. It will produce when baked, according to the quality of the flour, from 26lb. to 28lb. of bread, at the following cost:—

	s.	d.
Flour	3	6
Rice	0	2¾
German Yeast	0	1
Baking	0	3¼
	4	1

This bread is very white, and keeps good for upwards of a week.

Rice is at present greatly used in bread, in the same way as flour, or as "H. E. A." uses the maize flour, which is a great waste. It does not produce so good a bread, and rice flour is expensive, as it destroys the stones in grinding, and the poor cannot obtain it; buying it whole and pulping it saves this expense.

Withernsea, Nov. 25. G. W.

MUMMY WHEAT.—The variety of wheat called "mummy wheat" appears to be exciting great attention in France. At one of the late meetings of the *Academie des Sciences*, at Paris, M. Guerio Meneville produced a number of wheat straws of more than seven feet in height, each of them bearing several splendid ears. This wheat originated in five grains that were found in an Egyptian tomb, and were sown in 1849, when, after having laid dormant for thousands of years, they grew up luxuriantly, and yielded 1,400 fold produce. Since then the sowings have been regularly continued, and not less than 2,000 pounds weight of "mummy wheat" have been sown this year in the district of Moriaix. Last year one half of a field was sown with the Egyptian, the other half with common French wheat; the former gave sixty-fold, the latter a fifteen-fold produce.

1855

To Kill Bugs & Fleas.

Close all the apertures of the Room &c then set a pan of burning embers on the floor, and sprinkle some roll brimstone, broken into small pieces, on the embers, leave the room quickly and close the door, and let it burn for 2 hours & all the vermin will be killed.

Times 20 aug^{t} 1855

To make light Bread.

To 3 lbs of flour mix 3 teaspoonsful of soda passing the whole through a sieve to mix them well together; to 1 quart of water add one teaspoonful of muriatic acid which mix with flour - Wet the hands in cold water & knead into shape, and put it at once into the oven. The soda & acid constitute the elements of common salt so that no salt is required.

London Journal 1851

Ague to cure

Quinine 1 Dram, Extract of Gentian 1 Dram Made in 20 Pills - Two to be taken morning, noon & night for 3 days.

Diuretic to act on the Kidneys

Extract of Dandilion 1 ounce.

1 Teaspoonful & drops, to be taken twice a day for pain in the loins - for Mrs Wilson

Then after the urine is corrected

Take 24 grains Sulphate of Quinine

1 oz Aromatic Sulphuric Acid, diluted

½ " Tincture of Orange Peel - Mix

8 drops to in a wine glass of Water 3 times a day

Hammersmith
19/3/56.

For the Eye

Take 4 oz Rose Water
2 oz Liquor acetate of ammonia
8 grains Sulphate of Zinc – Mix

For Inflamed Eyes, wash or drop a few drops into the eye 3 or 4 times a day.

A Strengthening wash for the Eyes.

Take 3 oz Camphorated Mixture
3 oz of Liquor Acetate of Ammonia
12, 10, or 8 Gr Sulphate of Zinc – Mix –
Apply as above –

For the Eye –

Singletons Golden ointment

Laxative

Epsom Salts, —— 2 oz
Manna —— 2 oz
Dose ½ oz of each. –

Ants to distroy

Stir up the nest & Strew over it guano.

Rice Cake

Take 6 Eggs & ½ lb Sugar, beat ½ an hour with whisk or until quite light, then Stir ½ lb of Ground Rice, & 4 oz fine flour successively well mixed & the rind of a lemon Bake ¾ of an hour

Family Herald

For the Eye:

No 1. Diacetate 2 gr. to 1 oz of Rose water
This is a sedative lotion

2. Sulphate of Zinc 2 gr. to Do.
A slight astringent & Stimulant lotion.

3 Sulphate of Alum 4 gr. to 1 oz Rose wate
An Astringent lotion

4 Sulphate of Copper 3 or 4 gr to 1 oz wate
A Stronger lotion - Astringent & Stimulant

5 Nitrate of Silver 1 gr. to 1 oz water
Caustic drops - two drops Twice a day

The above lotions have been used by myself and were prescribed by Dr Mackenzie of 7 New Broad Street near the Bank London England - On whom I have been attending these 2 month & have had my eyes burnt with Caustic 6 or 7 times with what result I do not yet know - I am using the Zinc lotion

J. Wilson 19/3/56

Rose water or Decotion of Elder flowers an good substitutes for common wate

For acute Rheumatism

Tincture of Gentian	2 oz
Sulphuric Ether	1 Dram
Acetate Morphine	3 grains

to be taken
a Teaspoonful to
Two or 3 times a day

Flies to destroy

No R. Take 1 pint Milk
1/4 lb raw sugar
2 oz Ground pepper
Simmer them together 8 or 10 minutes
put it into shallow dishes & place
them about the house

Mantle-pieces of Marble

May be cleaned by rubbing them
with flannel dipped in a weak
solution of Carbonate of Soda

Stomach Cordial

Simple tincture of ginger one
drachm; compound tincture of
cardamoms two drachms; compound
tincture of senna, three drachms.
Very good for costiveness or lowness of
spirits. If much acidity prevails in
the Stomach let a drachm of Dr
Gregory's Powders, and two ounces of
Peppermint water be added to the above.

a Cellar

Bristol, Jan. 1, 1858.

A HINT FOR LIGHTING.—Mr. Alexander, a wine merchant in Toronto, has an arrangement for throwing daylight into the basement cellar of his new premises in Wellington-street, which is well worth the attention of those having similar premises, and who are desirous of saving the expenditure of gas. By means of a fluted reflector made of block tin, and presenting a large amount of reflecting surface, which is placed outside the window at a movable angle, and under the level of the roadway, the daylight is thrown directly to the cellar, producing an effect of illumination in comparison to the light ordinarily transmitted through the cellar windows which requires to be seen to be appreciated.

HINTS UPON TEA MAKING.—Soyer, in his "Campaign," gives the following recipe, which housekeepers would do well to experiment upon:—"I had a large kettle made, holding eight quarts, and put a coffee filter to it. I then poured the rations of tea for twenty men in the filter, poured in the boiling water, and, to my astonishment, made about one-fourth more tea, perfectly clear, and without the least sediment. This, reader, I claim more as a happy thought than an invention; but I always had an idea that tea should be suspended in the water instead of being allowed to fall to the bottom."

Cabbages. Smell of

It is said that placing a piece of grapevine, or a dish of vinegar on the stove where cabbages are boiling, will entirely prevent the unpleasant odour arising from them.

The standards now established by law, will remain unchanged in all cases except one—that is the gallon; we require that this measure should contain exactly 10 pounds avoirdupoise of distilled water.

Now, the United States wine gallon is too small, and the ale gallon a trifle too large; but the gallon derived from the State bushel of New York will just suit us. That bushel must contain 80 pounds of distilled water, and the gallon (4 quarts) being $\frac{1}{8}$ of a bushel, will, of course, contain ten pounds, as alluded to before.

We proceed to consider the measure of

WEIGHT.

We have three different orders of weight in full operation, viz:—Troy, Avoirdupois, and Apothecaries' weight.

The weight of the various pounds in Troy grains, stands thus:

The Troy and Apothecaries' pound, 5760 grains.
The pound Avoirdupois,..... 7000 "

We propose to supersede these three orders of weight, by the establishment of one; the unit of which is the standard pound *Avoirdupois*. The scale of weights is as follows:

10 grains	=	1 scruple.
10 scruples	=	1 dram.
10 drams	=	1 ounce.
10 ounces	=	1 pound.
10 pounds	=	1 stone.
10 stones	=	1 hund. wt.
10 hund. weights	=	1 ton

The order of this scale is regulated by the pound, which with the hundred weight, (100 pounds), will remain unchanged.

Let it be noticed *that the figures used to express any quantity, show the number of any denomination contained in that quantity*, thus: 123,456 drams may be read, 1 ton, 2 hundred weights 3 stones, 4 pounds, 5 ounces 6 drams, or 12 cwts., 3 stones, 4 lbs., 5 oz., 6 drams; or 123 stones, 4 lbs., 5 oz., 6 drams; or 1,234 lbs., 5 oz., 6 drams; or 12,345 ounces, 6 drams.

By means of this arrangement, "Reduction" will become a nullity.

It will be observed that any article sold at 4c. per dram, will be 4 dimes per ounce, 4 dollars per pound, 4 eagles per stone, 40 eagles per cwt., and 400 eagles per ton. In fact, the price of one term gives all the others throughout the scale.

The first impression of the tradesman upon looking at these scales may be that confusion will be introduced into his warehouse, and loss entailed by the *alteration* of quantities. Such a conclusion will soon disappear when he understands that the unit of weight, the pound, remains the same, so that sugar for which he is asking 8c., is still 8c. per pound, the half-pound 4c., and the quarter 2c.

Take a more expensive article, at $2 per pound, and if an ounce is required, it will be 2 dimes, the new ounce being the 10th part of a pound. Whether the ounce is larger or smaller, is of no consequence to the buyer or seller, since it being the 10th of the pound, (which is *invariable*), it is also the 10th of the price of the pound.

On this scale the grain will be the 10,000th part of a pound, instead of the 7000th, which is admitted to be an improvement.

The ton will be fixed at 1000 pounds, instead of fluctuating between 2000 and 2240 pounds, as at present.

We now turn our attention to

MEASURES OF CAPACITY.

We have at present four distinct orders of this measure, viz.: Wine, Beer, Dry, and Apothecaries' measures. We propose to merge them all into this scale.

10 grains	=	1 scruple.
10 scruples	=	1 dram.
10 drams	=	1 gill.
10 gills	=	1 pint.
10 pints	=	1 gallon.
10 gallons	=	1 anker.
10 ankers	=	1 tun.

Here the gallon is the standard unit; it corresponds with the gallon dry measure of the State of New York, and differs but little from the ale gallon now used. The pint on this scale is as nearly as possible equal to the pint wine measure.

A beautiful uniformity would thus subsist between the scale of weight and that of measure, from the fact of milk, vinegar, wine, refined oils, together with most other fluids in common use, *being of nearly the same weight as water*. The correspondence between the scale of weight and that of measure stands thus:

1 grain in weight	=	1 grain in measure.
1 scruple "	=	1 scruple "
1 dram "	=	1 dram "
1 ounce "	=	1 gill "
1 pound "	=	1 pint "
1 stone "	=	1 gallon "
1 hundred weight	=	1 anker "
1 ton "	=	1 tun "

This result is one important step towards the attainment or uniformity where *one scale of weight*, of which the pound is the standard, answers for all purposes of weight; *and one scale of capacity measure*, where the gallon is the standard, answers all purposes of measure.

We have just seen how weight and measure coincide; we now proceed to show how these again harmonize with price.

For this purpose we choose a costly article—otto of roses, for instance:

WEIGHT.		MEASURE.		PRICE.
Grain	=	grain	=	5 mills.
Scruple	=	scruple	=	5 cents.
Dram	=	dram	=	5 dimes.
Ounce	=	gill	=	5 dollars.
Pound	=	pint	=	5 eagles.
Stone	=	gallon	=	50 eagles.
Hund. weight	=	anker	=	500 eagles.
Ton	=	tun	=	5000 eagles.

Thus it clearly appears that if the *price* of any term on the scale of measure is known, not only is the price of every other term known, *but its weight and measure also*.

The convenience and utility flowing from this happy connection between weight, measure and price will be experienced in a thousand different ways that we cannot now illustrate; yet we may allude to the content of casks being ascertained with greater accuracy by weight than by gauging.

The term "stone," on the scale of weight is not yet obsolete here. A stone of wire is 14 lbs., and the stone is also used for the expression of weight for many other articles.

The term "anker" is known only as a measure for brandy, and it as it always has been, ten gallons.

over

1g2 Brot over

SCALE OF LINEAR EXTENSION.

10 seconds.....=..... 1 inch.
10 inches.....=..... 1 foot.
10 feet.....=..... 1 rod.

Here the "foot" is the invariable standard unit from which the other terms are calculated. Our purpose requires that the foot be divided into ten inches, and these, again into a subdecuple series, to any degree of minuteness. Square and cubic measure flow as a matter of course, from the scale of length; here duodecimals will

LAND SCALE.

10 square links.....=.....1 square staff.
10 " staffs.....=.....1 " reed.
10 " reeds.....=.....1 " plat.
10 " plats.....=.....1 " chain.
10 " chains.....=.....1 " acre.

Here the acre is the invariable unit, which together with the link and chain, will remain unaltered.

The decimal division of the acre requires 5 equations, commencing with the link, and to increase the difficulty, the terms "perch and rood" found on the table, are not available. Forced therefore, to seek for three new terms, we first choose the *offset staff*, an instrument of 10 links in length, just the required dimensions, and being well known to surveyors, the "staff" is new only in application.

We now require a term for the 1000th part of an acre; this we call a "reed."

The next is for 100th part of an acre, or nearly 7 yards square; for this we think "plat" the most suitable.

Here we feel ourselves compelled to deviate from our practice of adhering to the present nomenclature, from the wide difference of the quantities, the perch is the 160th, and the rood the 4th part of an acre; and these would be very unsuitable terms to represent the hundredth and the thousandth parts of the same quantity.

SCALE OF NUMERAL ACCOUNTS.

10 units.....=.....1 decade.
10 decades.....=.....1 hundred.
10 hundreds.....=.....1 thousand.

This scale will be of more service in commerce than time will permit us to show. It will supersede the long catalogue of unconnected quantities, such as dozens, scores, long-hundreds, &c. It completes the unifomity of our plan, and is, in fact, the scale of notation condensed, where the terms are marshalled in decimal order, and will prove a means for calculating that numerous class of articles, that are sold by the medium of counting.

THE SECRET OF HORSE-TAMING.

All horses can be temporarily subdued; but some require a much longer time for that purpose than others, and the operator must possess a commanding self-possession and energy of will. The vicious horse can be quieted even so as to be entirely under control; but after the influence of the operator has been removed, and the effect of his operation has subsided, he will resume his constitutional tendencies. With nervous horses the case is altogether different. Repeated operation acts upon them as a kind of education and training; they becoming habitually quiet. The Boston (United States) *Journal* has the following article on Mr. Rarey's system of horse-taming:—"We saw Mr. Rarey in this city some two years since, and had a long and interesting conversation with him in regard to his peculiar mode of subduing wild and vicious horses. His method of managing a vicious animal entirely precluded the use of force or fear, and he represented that his power was obtained solely through certain herbs and drugs, first subduing the desire of the horse to injure him, and then by aspiring the beast with affection and confidence he is enabled to do whatever he chooses with him. These herbs and drugs are perfectly harmless, and as Sir Richard Airey says, 'there is nothing in the treatment but what any horseman would approve of.' Mr. Rarey did not communicate his secret to us, but we have no doubt his treatment is substantially the same as that described in the following extract which has been floating through the papers of this country for several years:—'The horse-castor is a wart, or excrescence, which grows in every horse's forelegs. It has a peculiar rank musty smell, and is easily pulled off. The ammoniacal effluvia of the horse seems peculiarly to concentrate in this part, and its very strong odour has a great attraction for all animals, especially canine, and the horse himself. The oil of Rhodium possesses peculiar properties. All animals seem to cherish a fondness for it, and it exercises a kind of subduing influence over them. For the oil of cumin the horse has an instinctive passion--both are original natives of Arabia, and, when the horse scents the odour, he is instinctively drawn towards it. The directions given for taming horses are as follows:—Procure some horse-castor, and grate it fine. also get some Rhodium and oil of cumin, and keep the three separate in air-tight bottles.—Rub a little oil of cumin upon your hand, and approach the horse in the field, on the windward side, so that he can smell the cumin.—The horse will let you come up to him then without any trouble. Immediately rub your hand gently on the horse's nose, getting a little of the oil on it. You can lead him anywhere. Give him a little of the castor on a piece of loaf-sugar or potato. Put eight drops of the oil of Rhodium into a lady's silver thimble.—Take the thimble between the thumb and middle finger, stopping the mouth of the thimble to prevent the oil from running out while you open the mouth of the horse. As soon as you have opened the horse's mouth, tip the thimble over upon his tongue, and he is your servant. He will follow you like a pet dog. He is now your pupil and your friend.'"

Borax

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USEFUL INFORMATION.—The washerwomen of Holland and Belgium, so proverbially clean and who get up their linen so beautifully white, use refined borax as a washing powder instead of soda, in the proportion of a large handful of borax powder to about ten gallons of boiling water; they save in soap nearly half. All the large washing establishments adopt the same mode. For laces, cambrics, &c., an extra quantity of the powder is used, and for crinolines, (required to be made very stiff) a strong solution is necessary. Borax being a neutral salt does not in the slightest degree injure the texture of linen; its effects is to soften the hardest water, and therefore it should be kept on every toilette table. To the taste it is rather sweet, is used for cleaning the hair, is an excellent dentrifice, and in hot countries is used in combination with tartaric acid and bi-carbonate of soda as a cooling beverage. Good tea cannot be made with hard water; all water may be made soft by adding a tea-spoonful of borax powder to an ordinary-sized tea kettle of water in which it should boil. The saving in the quantity of tea used will be at least one-fifth. To give to black tea the flavour of green tea, add a single leaf from the black currant tree.

A misunderstanding is reported between Austria and the Roman Catholic hierarchy.

Ink Spots.

TO TAKE INK OUT OF LINEN.—Editors and clerks will learn with pleasure, that to take a piece of tallow, melt it, and dip the spotted part of the linen into the melted tallow, the linen may be washed, and the spot will disappear without injuring the linen.

CROUP.—At a recent meeting of the Paris Academy of Sciences, the disease of croup—so common among children—formed the subject of very important remarks. Dr. Jodin stated that it was a parasitic affection, and of all simple remedies, capable of removing these parasitical growths, the perchloride of iron is by far the best. It penetrates through the fungus, modifies the hæmorragic state which always exists in the affected parts, and in their neighborhood, and, lastly, obliges the patient to expectorate, by which means the false membrane is expelled, and an immediate cure effected.

CURE FOR BRONCHITIS.—One of our cleverest and most reliable friends, says the Holly Springs "Herald," informs us that mullen leaves, smoked in a new pipe—one in which tobacco has never been used—is a sure and certain cure for bronchitis. The remedy is simple and innocent and within the reach of all. Recollect that this is no retired physician's remedy, but is given to us by a citizen of our county, who has tried it himself, and seen it tried in others, and has never known it to fail in effecting a permanent cure.

Glue.

Marine glue was patented by Mr. Jeffery, in 1842. It is formed by dissolving one pound of caoutchouc, in small pieces, in four gallons of coal naphtha, with frequent stirring, the solution occupying 10 or 12 days; two parts of shellac are then fused in an iron vessel and one part of the solution being well stirred in, the glue is poured out on slabs to cool. A joint made with this glue between two pieces of wood becomes stronger than the fibres of the wood itself.

Rats to banish

RATS.—A correspondent of the *Gardener's Monthly* says:—"I tried the effect of introducing into their numerous holes, runs, or hiding-places, small portions of chloride of lime, or bleaching powder, wrapped in calico and stuffed into the entrance holes, and thrown loose by spoonfuls into the drain from the house. This drove the rats away for a twelvemonth. When they returned to it, they were treated in the same manner, with like effect. The cure was most complete. I presume it was the chlorine gas which did not agree with their olfactories."

Dandruff

TO REMOVE DANDRUFF.—Take a thimbleful of powdered refined borax, (can be had at any druggist or country store) let it dissolve in a tea-cup full of water; first brush the head well, then wet a brush with the mixture, and apply to the head. Do this every day for a week, and twice a week after for a few times, and you will effectually remove the dandruff.

11/10/58

Grease for Wagons

ANTI-FRICTION.—Take three pounds of tallow, one of lard, and one of fine black lead, and two ounces of india rubber, cut in shreds; heat them together until they are completely mixed, when it makes a most excellent anti-friction grease for the axles of wagons.

Great guns cost something. A ten inch Parrott gun costs $6,500; an eleven inch Rodman gun costs $6,500; a fifteen inch Krupp's gun costs $29,400; a twelve inch Blakely gun costs $35,000. The two latter are made of steel.

Ladies should remember that a small piece of linen, just moistened with turpentine, and put into the wardrobe or drawers for a single day, two or three times a year, is a sufficient and good preservation against moths.

USEFUL RECEIPTS—TO FRY TOMATOES.—Slice them, season with pepper and salt, and fry in hot butter; if they are green, dip them in flour after being seasoned. To cure rheumatism—Bathe the parts affected freely with "Canadian Pain Destroyer," (to be had at any druggists,) rubbing it in well with the palm of the hand, and in severe cases take sixty drops, or one teaspoonful, in molasses, morn, noon and night; it is also good for coughs, colds, sore throat, burns, sprains, &c. Twenty-five cents per bottle.

A French paper says that by an accident, charcoal has been discovered to be a sure cure for burns. By laying a piece of cold charcoal upon a burn the pain subsides immediately. The remedy is cheap and simple, and deserves a trial.

CURE FOR SMALL POX.—A great discovery is reported to have been made by a surgeon of the English army in China, in the way of an effectual cure for small-pox. The mode of treatment is as follows: When the preceding fever is at its height, and just before the eruption appears, the chest is rubbed with croton oil and tartaric ointment. This causes the whole of the eruption to appear on that part of the body, to the relief of the rest. It also secures a full and complete eruption, and thus prevents the disease from attacking the internal organs. This is said to be now the established mode of treatment in the English army in China, and is regarded as a perfect cure.

WATER-PROOF GLUE.—Render glue perfectly soft, but not liquid, in cold water. Then dissolve it by a gentle heat in linseed oil. It dries almost immediately, and water will not affect it.

FOOD FOR WEAK STOMACHS.—In the "Memoirs of Count Segur," vol. 1, p. 186, there is the following anecdote: "My mother, the Countess de Segur, being asked by Voltaire respecting her health, told him that the most painful feeling she had arose from the decay of her stomach, and the difficulty of finding any kind of ailment that it could bear. Voltaire, by way of consolation, assured her that he was once for nearly a year in the same state, and believed it to be incurable; but that, nevertheless, a very simple remedy restored him. It consisted in taking no other nourishment than yolks of eggs, beaten up with the flour of potatoes and water." Though this circumstance took place as far back as fifty years ago, and respected so extraordinary a personage as Voltaire, it is astonishing how little it is known, and how rarely the remedy has been practiced. Its efficacy, however, in cases of debility cannot be questioned, and the following is the mode of preparing this article of food, as recommended by Sir John Sinclair: Receipt—Beat up an egg in a bowl, and then add six tablespoonfuls of the farina of potatoes, to be mixed up tho roughly with the liquor in the bowl. Then pour in as much boiling water as will convert the whole into jelly, and mix it well. It may be taken alone or with the addition of a little milk and moist or best sugar, not only for breakfast, but in cases of great stomachic debility, or in consumptive disorders, at the other meals The dish is light, easily digested and extremely wholesome and nourishing. Bread or biscuit may be taken with it, as the stomach gets stronger.

Rheumatism to Cure

1 Pint Spirits of wine
1 oz Camphor
1 oz Origanum, oil of
½ oz Oil of Wormwood
1 oz Barbadoes Tar
1 oz Turpentine
Mix – Rub in 2 or 3 times a day

Rats to Kill

Cork cut into thin slices like wafers & fried in lard & laid in the places where the Rats or Mice frequent.

Fainting to recover

If a man faint lay him on his back & let him remain quiet.

Poison to Eject

If a man swallow poison. Get ½ a tumbler of water put into it Tea spoonful of salt & as much Ground Mustard stir it well. Then take a firm hold of his nose so as to stop his breathing through his nostrils, he will then open his mouth so that you may pour the Draft & in few seconds he will Vomit Next give the white of an (raw) Egg followed by a cup of strong Coffee.

To Stop Bleeding

If a Limb be severely cut & the blood comes out by Spirts or Jerks an Artery is Cut. & he may die in 5 minutes; therefore hast & tie a handkerchief tight around the part between the heart & Cut. for the blood flows from the heart.

If a Vein be severed the blood will flow in a Steady Stream, Then the tie should be below the Cut, as the blood is returning to heart

Pickle for Beef or Pork

To eight gallons of Water, add one quart of Molasses, three pounds of Sugar, four ounces of Saltpetre, and nine Salt sufficient to make it so strong that it will bear up an Egg

This quantity will suffice for two quarters of Beef. To be put on to Beef Boiling Hot. Cold on to Pork. The meat with this Pickle is not salted, but packed tight into the Barrel

Dandruff or Scurf
to remove

Take 1 pint Alchohol
1 Table Spoonful Castor Oil
Mix & Shake well
Then scent it with a few
drops of Oil of Lavender—

Spots or Stains to remove from cloth.

Take 1 oz pipe clay, ground fine
12 drops alcohol
12 " Spirits Turpentine
mixed together & kept for use.
When wanted mix a little of this with alcohol & rub on the cloth & let it remain till dry, then rub it off with a woolen cloth.

Vermin to Kill on
Cattle or fowls

Take common lamp oil and rub it well in on the back of the ears & down the back, once a week— For fowls rub on back of head, under wings & Tail

Flies to Kill.

Take 1 pint Milk
1/4 ℔ Raw Sugar
2 oz Pepper simmer
them together 8 or 10 minutes
then place it about in shallow
dishes

For Rheumatism

48 Grs. Iodide Potass
4 oz Water
2 oz Tincture Orange
Take a Tea spoon for a dose
Use a Pitch plaster — and Sprinkle
a little Cayenne pepper, or Tartar
Emetic on it. Rec.d from
E Heathfield

Staining to Cure.

Prussic acid ——	2 drams
Acetate of lead ——	16 Grains
Spirit of Wine ——	1/2 ounce
Water, soft ——	8 —— "

Mix for a lotion

Graham.

Itch to Cure

Hydriodate of Potass ——— 2 drams
Water ——— ——— ——— 8 ounces

Mix for a Lotion.

Black Wash (Inquire Within 972)

Add Calomel ½ a dram to 4 ounces of lime water for a lotion

Yellow Wash

Dissolve 4 grains of Corrosive Sublimate in 4 ounces of lime-water — Bruise the Crystals of the salt to assist its solution.

With the above lotions wash the parts affected.

Ointment of Nitrate of Mercury

Take of purified Mercury ——— 1 oz
Nitric Acid, fluid drams 11
Prepared Lard ——— ——— 6 oz
Olive Oil (fluid) 4 oz

First dissolve the Mercury in the acid; then, while the solution is hot, mix it with Lard & Oil melted together

It is stimulating & detergent and singularly effective in Cutaneous eruptions ——— Brand. p 519

Also Holloways Ointment is said to be a cure for Itch

over

Ointment of white precipitated Mercury.

Take of white precipitated.

Mercury ——— 1 dram
Prepared Lard —— 1½ oz

To the lard, melted over a slow fire, add the precit. Mercury & Mix

It is very effective in the treatment of Itch & in the destruction of Vermin.

Braud p 520

A Lotion

Graham p 439

Take of Prussic acid — 2 drams
Oxymuriate of Mercury 6 Grains
Emulsion of bitter Almonds ½ pint
Mix. To be used twice a day.

Particularly useful in allaying the troublesome Itching of eruptions of the Skin

Another

Take of Ointment of nitrate of Mercury (Graham p 132) 2 drams
Saturnine ointment 6 — Dr
Mix. And apply to the part, affected night & morning

Graham p 439

Pill No 98 or 99 p 135 Should be taken

Wash for Fruit Trees

Wash the trunk of the tree with a solution of Common Sal-soda often called Bleachers No 1 Soda

1 lb to a Gallon of Rain water

It is better than Jar, Potash or Lime. It will not hurt the tree, but will destroy mosses & other fungi, & no egg or cocoons can stand before it.

Chloride of Lime

Professor Hoffff, Chemist States that if a little Chloride of Lime be Sprinkled on a plank in Stables all Species Flies, especially stinging ones, will be driven away; and that if leguminoses plants be Sprinkled with a Solution of the Same they will be preserved from the ravages of Insects, Snails &c. And the Same beneficial effects may be produced on Fruit-Trees, by making a paste of one part of Chloride of Lime in powder & half a part of Some fatty substance, and forming a narrow circle of the paste

round the tree – Rats & Mice, he says, quit the Spots where the chloride is deposited

Eruptions on the Face

Sulphur, flower of . . . . ½ dram
Carbonate of Soda . . . 1 Scruple
Tartarized Antimony . . . 1/8 of a Grain
To be taken in Syrup, night & morning

Lotion for Do.

Milk of bitter Almonds . . 7 ounces
Bichloride of Mercury . . . . 4 Grains
Spirit of Rosemary . . . . . 1 ounce
Bathe the eruptions 2ce a day.

See Inquire within p 181

A Lotion for Itch

Sulphate of Zinc . . . . 2 Scruples
Sugar of Lead (30) . . . . x 15 Grains
Water, soft. . . (8) . 6 ounces
Wash the parts 2ce or 3ce a day
and take the above powder

x Brand says (p 309) 30 Granes to 8 oz water – for Eye water 10 Gr. to 8 oz of water, soft or rose or Elder water to which add 2 or 3 drams of Vinegar.

Chelsea Pensioner, for Gout or Rheumatism

Turkey Rhubarb	1oz
Gum Guaicum	½ "
Nitre	1 "
Sulpher	1 "
Mustard (the best)	1 "

All to be well pulverised and mixed.

A Teaspoonful, to be taken before Breakfast and on going to Bed.

from Mr Nicholson.

Cramps

Take of water of ammonia or Spirits of hartshorn an ounce; olive oil, two ounces. Shake them together till they unite, and use as a liniment to rub upon the affected part.

Fomentation for Rheumatism

Gaulards Extract —— 4 oz
Laudanum —— 2 "
Water —— 6 "

Prescribed by the Doctor on the Steamer North American 1862.

Chertney Sauce

1 lb Tomatoes
1 " Sharp Apples
1 " Salt (rather too salt)
1 " Raisins, Stoned,
1/2 " Red Chilies
1/4 " Shalots
1/2 " Ginger
1 " Sugar
The juice of 12 Lemons
Cover all with Vinegar
Put the Jar containing the above in a pan of hot water & simmer till all is dissolved, stirring twice a day.

Onions as Medicine

Fill a 3 pint saucepan with Onions, then fill up with water, and simmer for 2 or 3 hours till reduced to a pulp - Strain through a cloth, add an equal weight of brown sugar, and again simmer till dissolved - Bottle and keep for use - This syrup was given in doses of 2 Table spoonful every 2 hours, for Dropsy - but it is an excellent medicine for gravel, lumbago, gout & for all affections of the Kidneys & the urinary Organs -

English paper 9 Mar 1863

To Cure Hams

To about 14 ℔, Meat
1 ℔ Sugar - ½ ℔ Salt
¼ " Allspice & 2 oz. Saltpetre

To Clean Paint.—Smear a piece of flannel in common whiting, mixed to the consistency of paste in warm water. Rub the surface to be cleaned quite briskly, and wash off with pure cold water. Grease spots will in this way be almost instantly removed, as well as other filth, and the paint will retain its brilliancy and beauty unimpaired.

Castor Oil Administration.—The medical men of Paris recommend the following way of administering caster oil to children:—The quantity of oil prescribed is poured into a small earthen pan, over a moderate fire, an egg broken into it, and stirred up so as to form something like what cooks call buttered eggs; when it is done, a little salt or sugar, or a few drops of orange water, or some currant jelly, should be added. The sick child will eat it eagerly and never discover the fraud.

To Make Soap

Take 4 Pails of Soft water
3 ℔s of Lime
6 ℔s Washing Soda
Simmer together for 4 hours
& then let it settle — pour off the clear liquor — then add one pail more Soft water and
6 ℔s Grease
1 Cupful of Salt and
Boil down to 5 Gallons

Gargle for Sore Throat
The juice of 1 Lemon — 1 Table Spoonful of Honey to 1 pint of thick Barly Water

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Ants to Banish

Place Turmeric in their track

A curious discovery has recently been made public in France, in regard to the culture of vegetables and fruit trees. By watering with a solution of sulphate of iron, the most wonderful fecundity has been attained. Pear trees and beans which have been submitted to this treatment have nearly doubled in the size of their productions, and a noticable improvement is remarked in their flavour. Dr. Becourt reports that while at the head of the establishment at Enghien of the sulphureous springs, he had the gardens and plantations connected with it, watered during the several weeks of spring with sulphureous water, and that not only the plantations prospered to a remarkable extent, but flowers acquired a peculiar brilliancy of colouring and healthy aspect, which attracted universal attention.

To Free a Garden of Ants.—We learn from the Ohio *Farmer* that M. Garnier has just announced an infallible method of getting rid of ants. In a corner of his garden infested with legions of these insects he placed four saucers, containing sugar and water, with the tenth of its weight of arsenic in the mixture. A number of ants immediately invaded the saucers, but were soon after perceived staggering away, as it were, and some being even engaged in dragging their dead comrades away. From that moment they disappeared from the garden, and on the following day not a single one was to be seen. The arsenic is a deadly poison and should not be used carelessly.

"The late Mr. Youatt, the veterinary surgeon, who has himself been eight times bitten by mad dogs, uses as a remedy the common nitrate of silver, easily procurable, to filter into the wound. It decomposes the saliva, and in doing this destroys the virus. Whenever I am bitten I have a remedy sure and at hand, and no fear of the disease supervening. The best mode of application of the nitrate of silver is by introducing it solidly into the wound. It melts in an equal quantity of water. If already healed, the cicatrice should be rubbed and causticated away entirely. Between the time of the bite and the activity of the wound previous to dissemination, the caustic of nitrate of silver is a sure preventive; after that, it is as useless as all other means. The poison of hydrophobia remains latent, on an average, six weeks; the part heals over, but there is a pimple or wound, more or less irritable. It then becoms painful, and the germ, whatever it is, is ripe for dissemination into the system, and then all hope is gone."

I am, sir, your obedient servant,

JAMES BELL.

Scarborough, Dec. 12.

THE TOMATO AS FOOD.—A good medical authority ascribes to the tomato the following very important medical qualities:—1st. That the tomato is one of the most powerful aperients of the liver and other organs; where calomel is indicated, it is one of the most effective and the least harmful medical agents known to the profession 2nd. That a chemical extract will be obtained from it that will supersede the use of calomel in the cure of disease. 3rd. That he has successfully treated diarrhœa with this article alone. 4th. That when used as an article of diet, it is almost sovereign for dyspepsia and indigestion. 6th. That it should be constantly used for daily food. Either cooked or raw, or in the form of catsup, it is the most healthy article now in use.

Cataract, it is said, has been cured by a French physician without an operation. The new process is to apply to the diseased eye a phosphuretted collyrium, which gradually restores the transparency of the crystalline lens from the circumference to the centre, which is the last to yield. Thirty grammes of oil of sweet almonds, and ten centigrammes of phosphorus are dissolved in a water bath at 80° centigrade—176° Fahrenhit—in a full and closed vessel. Four grammes of the solution should be instilled between the eye-lids, three or four times a day, for several months, or until the cure is completed.

A PREPARATION FOR PRESERVING LEATHER.—We translate from the *Geber Courcer* a receipt for a preparation which is said to insure a great durability to leather, and to make it very pliable and soft. It consists of four articles, tallow, soap, rosin and water. These ingredients are prepared as follows:—Twenty-one parts of tallow are melted in a vessel, three-parts of rosin added, and the two, when melted, mixed well together. In another vessel seven parts of good washing soap are disolved in seventy parts of pure rain water. After it is dissolved and the mass heated to the boiling point, we add the part prepared before, let it boil once more gently, and the preparation is ready for use. It is especially addapted to boots, harness, leather and belting.—*Shoe and Leather Reporter.*

A circular just issued in New York, in behalf of the widows and orphans of Federal soldiers, makes the startling statement, that "it is estimated that there are over twenty-five thousand soldiers' widows in the city of New York" alone!

HOW TO MAKE BUCKWHEAT CAKES.—The season for buckwheat cakes has arrived. A writer in the *American Agriculturist* recommends the following method for making them:—"The finest, tenderest cakes can be made by adding a little unbolted wheat (or Graham flour to the buckwheat; less than a quart will do. Mix with cold, sour milk, or fresh (not sweet) buttermilk, which is best. The soda (emptyings are dispensed with), when put in cold water, will not act satisfactorily.—Bake at once. The heat will start the effervescence, and as the paste rises it will bake, thus preventing it from falling. Hence the culminating point of lightness is attained. The batter rises snowy and beautiful, and the pancake will swell to almost undue dimensions, absolutely the lightest and tenderest that can be baked, with not a touch of acid. More salt, however, must be added than usual, to counteract the too fresh taste, when soda alone is used. Thus the bother of emptyings is all dispensed with. Pancakes in this way can be baked at any time, and on the shortest notice. We keep our flour mixed, the Graham, with the buckwheat ready for use."

CEMENT FOR KNIFE HANDLES.—1. Lay a piece of alum on the stove, and when melted, roll the knife shank in it, and immediately thrust it firmly into the handle. It will soon be ready for use. 2. Fine brick dust stirred into melted rosin, and used hot, will fix knife and fork handles very firmly. 3. Mix equal parts of wood ashes and common salt with water enough to make a mortar. Fill the handle with this, and then drive in the shank and let it dry. I also fixed

How to Act when the Clothes Take Fire.—Three persons out of four would rush right up to the burning individual, and begin to paw with their hands without any definite aim. It is useless to tell the victim to do this or that, or call for water. In fact, it is generally best to say not a word, but seize a blanket from a bed, or a cloth, or any woollen fabric—if none is at hand, take any woollen material—hold the corners as far apart as you can, stretch them out higher than your head, and running boldly to the person, make a motion of clasping in the arms, most about the shoulders. This instantly smothers the fire and saves the face. The next instant throw the unfortunate person on the floor. This is an additional safety to the face and breath, and any remnant of flame can be put out more leisurely. The next instant, immerse the burnt part in cold water, and all pain will cease with the rapidity of lightning. Next, get some common flour, remove from the water, and cover the burnt part with an inch thickness of flour, if possible; put the patient to bed, and do all that is possible to soothe until the physician arrives. Let the flour remain until it falls off itself, when a beautiful new skin will be found. Unless the burns are deep, no other application is needed. The dry flour for burns is the most admirable remedy ever proposed, and the information ought to be imparted to all. The principle of action is that, like the water, it causes instant and perfect relief from pain, by totally excluding the air from the injured parts. Spanish whiting and cold water, of a mushy consistency are preferred by some. Dredge on the flour until no more will stick, and cover with cotton batting.

The local application of a solution of persulphate of iron (Liquor Ferri Persulphatis) in cases of diphtheria and ulcerated sore throat, acts also as a specific in arresting the ulcerative inflammation of these two alarming diseases. It should be applied undiluted by means of a probang (or a rag securely fastened upon one end of a bent stick) immediately to the ulcerated patches or sloughs. Two or three such applications, together with the usual tonic treatment will restore the parts to a healthy condition in twenty-four hours.—[Philadalphia Medical Reporter.

CURE FOR HYDROPHOBIA.

Dr. Buisson, says the *Salut Public*, of Lyons, claims to have discovered a remedy for this terrible disease, and to have applied it with complete success in many cases.—In attending a female patient in the last stage of canine rabies, the doctor imprudently wiped his hands with a handkerchief impregnated with her saliva. There happened to be a slight abrasion on the index finger of the left hand, and, confident in his own curative system, the doctor merely washed the part with water. However, he was fully aware of the imprudence he had committed, and gives the following account of the matter afterwards:—"Believing that the malady would not declare itself until the fortieth day, having numerous patients to visit, I put off from day to day the application of my remedy—that is to say, vapor baths. The ninth day, being in my cabinet, I felt all at once a pain in my throat, and a still greater one in my eyes. My body seemed so light that I felt as if I could jump to a prodigious height, or that, if I threw myself out of a window, I could sustain myself in the air. My hair was so sensitive that I appeared able to count each separately without looking at it. Saliva kept continually forming in the mouth.—Any movement of air inflicted great pain on me, and I was obliged to avoid the sight of brilliant objects; I had a continual desire to run and bite, not human beings, but animals and all that was near me. I drank with difficulty, and I remarked that the sight of water distressed me more than the pain in my throat. I believe that by shutting the eyes, any one suffering under hydrophobia can always drink. The fits came on every five minutes, and I then felt the pain start from the index finger and run up the nerves to the shoulder. In this state, thinking that my course was preservative and not curative, I took a vapour bath, not with the intention of cure but of suffocating myself. When the bath was at a heat of fifty-two degrees centigrade (ninety-three degrees three minutes and five seconds Fahrenheit, all the symtoms disappeared, as if by magic, and since then I have never felt anything more of them. I have attended more than eighty persons bitten by mad animals, and I have not lost a single case." When a person has been bitten by a mad dog, he must for seven successive days take a vapour bath, *a la Russe*, as it is called, of fifty-seven to sixty-three degrees. This is the preventive remedy, When the disease is declared, it only requires one vapour bath, rapidly increased to thirty-seven degrees centigrade, then slowly to sixty-three degrees; the patient must strictly confine himself to his chamber until the cure is complete. Dr. Buisson mentions several other curious facts. An American had been bitten by a rattlesnake about eight leagues away from home. Wishing to die in the bosom of his family he ran the greater part of the way home, and going to bed perspired profusely, and the wound healed as a simple cut.—The bite of the tarantula is cured by the exercise of dancing, the free perspiration dissipating the virus. If a young child be vaccinated, and then be made to take a vapour bath, the vaccine does not take.

HOW TO RENDER GUNPOWDER NON-EXPLOSIVE.

Perhaps no town in the kingdom could be more interested than Liverpool in an invention which has for its object the prevention of accidents from the explosive properties of gunpowder. Large quantities of gunpowder are kept in the magazines in the river, and cargoes of the dangerous ingredient are being constantly shipped from this port for foreign countries. The affair of the Lottie Sleigh showed what fearful consequences might result to the town and shipping by an explosion taking place on board a powder ship from fire or other causes; and since that occurrence the authorities have felt the necessity for taking every precaution to guard against such accidents. Some interesting experiments took place in this town yesterday for the purpose of showing what could be done to render gunpowder non-explosive. Mr. Gale, electrician, of Plymouth, has discovered a process by which gunpowder can be rendered non-explosive, and its combustible properties restored when required. The process is simple and effective. It cannot injure the powder. The cost is very small, and it has the advantage of being readily applied. In five minutes a barrel of powder can be made non-explosive, and in another five minutes it can be restored to its original condition. Gunpowder subjected to this process can be stirred with a red-hot poker without an explosion. If a shell burst in a store filled with the prepared powder, the inventor states that it would not fire it. The process can be readily applied to the largest or the smallest quantities, and it does not require any cumbersome apparatus. On Thursday a number of gentlemen assembled by special invitation at the rear of the new public offices, Dale-street, to witness a series of experiments given by Mr. Gale and his co-patentee, Mr. Saunders, of Plymouth. Among those present were Aldermen Cooper, Woodruff, Councillors Clint, J. R. Jeffery, Blyth, Robinson, Fairhurst, Rigby, Harrison, Maurice Williams, Bowring, Jackson, J. H. Wilson, Messrs. M'Gowen (law-clerk to the watch committee), Corbally, John Petrie, Newlands (borough engineer), Dr. Trench, Lieutenant-Colonel Chambers, Major Faulkner, Major Greig, Captain Parks, A. Stone, &c.—Mr. Clint, chairman of the watch committee, was called upon to preside; and Mr. Saunders, owing to the blindnes of Mr. Gale, officiated as exponent and operator. He stated that the gunpowder was rendered non-explosive by being mixed with an impalpable powder of ground glass, and could be restored to its original condition by the speedy and simple process of sifting. He then proceeded to give a number of experiments, and varied them in such a manner as to subject the invention to the severest possible tests. A portion of the mixed powder, being sieved, exploded on the application of a match with instantaneous rapidity. A similar quantity unsieved was found to be quite uninflammable, although lighted fusees were thrown upon it, and a small quantity of pure gunpowder exploded, first on its surface, and afterwards in a cavity formed in its midst. Mr. Saunders next produced a somewhat uneasy sensation among those present by throwing a pound of gunpowder, mixed with four lbs. of the protective material, and tied up in a parcel, into a large fire in the centre of the spectators. Confidence was speedily restored, however, for it produced no more disagreeable consequences than a dense cloud of smoke. A barrel containing 10 lbs. of gunpowder with the same admixture of glass as in the former case was placed upon the fire, and proved equally harmless. A portion tightly packed in a tin canister was consumed in the fire without any explosion, and another barrel of protected powder was freely stirred with a red-hot poker, the only effect being the ignition of the black grains with which the iron came in contact. Gunpowder with various proportions of the protective mixture was then experimented upon. With equal weights of the two there was very rapid combustion, but no explosive force; with one part of gunpowder to two of glass the burning was less rapid, and with one part to three ignition was very difficult. In speaking of parts, it ought to be stated that weight only is meant; for one pound of powder is only about doubled in bulk by the addition of four pounds of the pulverised glass. It was practically shown that another advantage possessed by the protected gunpowder was its non-liability to injury from damp. In reply to objections which had been raised by some gentlemen present, it was explained that violent shaking would increase rather than lessen the non-explosive quality of the powder; that the cost of its carriage would, notwithstanding its augmented weight, be reduced as compared with that of explosive powder, inasmuch as it would become as ordinary merchandise when the element of danger was removed from it; and that he apprehended inconvenience of storage on board ship or elsewhere from its extra bulk would not arise, because it could be put away in large quantities without the necessity of barrels or other means of separation.

Those present seemed to be satisfied with the experiments and convinced of the practical utility of the invention. At the conclusion, Mr. Chut expressed the thanks of those present to the patentees for the interesting experiments that had taken place. He said the corporation were much interested in any invention which had for its object the prevention of explosions from gunpowder, and mentioned that the fire prevention committee were considering a bye-law for the control of the stowage of powder both upon land and water.

To light a Dark Room

Sir David Brewster, in his opening address at the Royal Society of Scotland, on Monday, described a new method of lighting dark houses. He spoke of houses situated in narrow streets, and said if we remove our window and substitute another in which all the panes of glass are roughly ground on the outside, and flush with the outer wall, the light from the whole of the visible sky, and from the remotest parts of the opposite wall, will be introduced into the apartment, reflected from the innumerable faces or facets which the rough grinding of the glass has produced. The whole window will appear as if the sky were beyond it, from every point of this luminous surface light will radiate into all parts of the room. In aid of this method of distributing light, the opposite side of the street or lane should be kept whitewashed with lime, and for the same reason the ceilings and walls of the apartment should be as white as possible, and all furniture of the lightest colours. Should this invention answer Sir David's description, he will have confered a benefit on the community far exceeding that derived from his other discovery—the stereoscope.

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How to Make Hens Profitable.

Mr. J. C. Thompson, of Staten Island, who takes an interest in all branches of husbandry, and pursues them with success, has contributed the following valuable observations on the keeping of poultry to the *American Agriculturist*. He has added since the publication in that periodical a postscript for the *Evening Post:*

"Most families in the country, and on the outskirts of cities, think they must keep one or more pigs to use up the offal of the family—or because it is the 'custom of the country.' Having tried pigs and become disgusted with the trouble, labor, expense, filth and noise—to say nothing of the inferiority of pork to eggs and poultry—I abandoned the former for the latter; the result has been quite satisfactory, and after several years trial, I feel confident the advantage is decidedly in favor of poultry. Here is my last year's account: January 1, 1861, stock on hand, 70 fowls, of which fifteen died during the winter from unknown causes, leaving me 52 laying hens. From these I obtained in January, 409 eggs; in February, 439; in March, 681; in April, 959; in May, 835; in June, 801; in July, 719; in August, 603; in September, 421; in October, 332; in November, 286; and in December, 440. Total, from 52 hens, 6,925 eggs—equivalent, in bulk, to seven barrels, as a barrel packed for market contains just about 1,000 eggs.—About 8 eggs from the Leghorn or black Spanish breeds, weigh a pound. My 6,925 eggs, therefore, weighed 865 pounds. Allowing the hens to weigh 5 pounds apiece, they each laid, on the average, three times their weight in eggs alone. As they hatched full a hundred chickens, the weight of which, when ready for the table, must have been 1½ pounds each, the whole amount of food produced was over a thousand pounds, notwithstanding I killed off part of the old stock in June, July and August, depending on the spring-hatched chickens, which began to lay in August, to keep up a supply of eggs and replace those killed off. When we consider the amount of food (of the very best kind) produced in one year from so small a stock to start on, and then, too, the stock left whole at the end of the year, the advantage of poultry over pigs can be seen at a glance.

"To produce 1,000 pounds of pork will require a vast amount of labor, a vast quantity of food, and any quantity of noise—giving fresh food for only a short time and salt food for the balance of the year—and the stock not left whole to start on again, as in the case of poultry. The product in eggs was more than 6,925, perhaps over 7,000, as I detected a boy that had access to the hen-house for some time, in stealing them. The number named was actually collected. My stock is principally Leghorn; and it now costs $3 per month to feed 75 head. As some may desire to know how the hens are managed, I send a brief description.

"The Hen-House.—Mine is a lean to—10x16 feet—10 feet high on the rear and 8 feet front, facing the south. A barn stands on the east and a shed on the west end, with a glass front, for a shelter and feeding place in cold and wet weather. The roofs of both project three or four feet, which keeps the ground dry in front and about the entrance. The back and front of the house are lined or double boarded, and the front has three glazed sashes—furnished with inside shutters—a ventilator 16 inches square is placed in the roof with a valve hung at the bottom, to close, more or less, as may be required, in cold and stormy weather.

"Roosts.—A frame is made and hung to the rear of the house, which can be set at any desired inclination; the roosts are placed lengthwise on the frame, ladder-like, about 18 inches apart. As all fowls seek the highest roosts these are filled first, and others in succession. This brings them close together in cold weather. In warm weather the frame must be levelled to make them scatter on all the roosts and keep as cool as possible.—The floor being concreted, it is easy to clean, keeps out rats, and makes it dry. Under the roosts I place fine charcoal [a poor plan to use charcoal—Ed.] or dry earth, or muck to absorb the droopings; a few shovelfulls added each day keeps the house free from any bad odor. The rest of the floor should be covered with sawdust, dry earth, chaff or cut straw, for, in cold weather, hens like to keep their feet dry and warm. Neither coal nor ashes should be put in the house, as they act on the manure and decompose the uric acid, thus wasting the ammonia, and making the house offensive.

"For Nests.—Use butter or lard tubs (which can be had at the grocer's for six cents each) set on shelves at the ends of the house, one to two feet from the floor—portable nests (with glass nest eggs) are best.—They should be often cleaned and supplied with fresh straw or hay. The grease on the tubs is a remedy against lice. Greasing the roosts at all the places where they touch the frame, and in fact, the inside of the house and roosts, with any kind of soft grease or fish oil is certain to destroy them, as they cannot live a moment in grease. A paint brush or white-wash brush can be used for applying the grease, which should be done early in the spring, and again in summer, if it appears to be required.

"Mode of Feeding.—I give only sound grain; no other should be used. A variety is not objectionable. My standing dish is wheat screenings; this is always by them in a box slatted up at the sides for the purpose, as a feeding box. In winter scalded corn meal or ground corn and oats is given to them warm in the morning; but the main food must be hard grains. They must be well supplied with finely cracked oyster shells, gravel and mortar, and green food in winter. Mine consume two or three heads of cabbage. They get bread scraps from the table, soup, meat, etc. In summer, grass, lettuce and cabbage are furnished daily in abundance—they will consume a great quantity.

"YARD ROOM.—The permanent yard is 50 × 50, opening into a grazing and rambling lot of 50 × 100, also used as a plum orchard. The fence is only 5 feet high, and by feeding well and clipping the feathers on one wing there is no trouble in keeping them at all times within the yard.

"SETTING THE HENS.—To insure good healthy chicks, the hen should be set in March, and certainly not later than April. By having portable nests, when hens desire to set and become fixed in the habit in the setting season, they can be supplied with eggs (the date of setting marked on them in ink or pencil), and any number of nests moved to a room for the purpose, which must be kept closed, and well supplied with food and water. The nests may all be set side by side, for if the hens should all leave their nests at once too feed, when they return they will each take a nest, although they may change places. This arrangement insures their setting steady, as they are not compelled to wander off for food, but return quickly to the nests and keep up the warmth of the eggs, and thus bring out strong chicks. By setting a number at one time, if some hatch half broods they can be put together with one hen. When a setting hen looks pale about the head it is evidence she is lousy; clean and wash the nest, grease the hen under the wings, on the back and rump, wash the eggs in warm water, and return to the nest.

"TREATMENT OF CHICKS.—When first hatched they must be fed on bread soaked in milk; after three or four days, feed with cooked or scalded Indian meal three times a day; but finely cracked corn or wheat screenings, should be always within their reach; also clean water. The hens with chicks should be kept in coops for several days, the coops kept dry and clean and placed in sheltered places. With such treatment not five per cent. of chicks will be lost. In conclusion let me say, the secret of success is this. They must be young, well fed and cared for, and small numbers—12 to 25—pay much better in proportion than large flocks.

"J. C. THOMPSON,

"Tompkinsville, Staten Island, N. Y.

"P.S.—Since writing the above I find 75 hens will eat six quarts of Indian corn a day, they helping themselves to it, that is, a peck to one hundred hens. The test was made on Indian corn, that being the staple food for poultry."

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A CURE FOR CHOLERA.

1865

The Limerick Chronicle of the 17th contains the following:

Sir,—As so much fear seems to exist upon the probable approach of cholera to this country, I think it my duty to lay the following facts before the public, and leave it to your discretion to publish them or not:

1st instance—A planter with a number of coolies on his estate, had 200 cases of severe Asiatic cholera—no deaths.

2nd instance—100 troops in an isolated position, and no medical aid, had 12 cases—no deaths.

Treatment in all cases:

1st. Put the patient to bed in a room, with plenty of air and light (mind the light); do not induce sleep.

2nd. Talk to the patient until he recovers.

3rd. Place a mustard plaster 8 inches in width across the stomach, so as to completely cover the region of the liver and reach fully to the other side; sprinkle the plaster with a little turpentine.

4th. Place the feet in hot water and mustard for ten minutes.

5th. Immediately upon the complaint of sickness having been made administer an emetic of

5 { 2½ grains Tartar Emetic,
  { 2½ grains Ipecachuana,

And lukewarm water *ad lib*, until the patient has vomited up a greenish mass of vitiated bile. If necessary repeat the dose in half an hour. Ten minutes after the vomiting give one glass of best brandy in hot water (but no sugar) with a little nutmeg and ginger grated on the top. Let the patient get up as soon as he feels lively enough to do so, but above all things remember that it is a great error to try and induce the patient to sleep or lull pain by stimulants or otherwise until the poison "which I have seen in 211 cases" has been rid of first.

I enclose my name, and if any medical officer in Limerick will call upon me at my address, I will be happy to explain to him the rationale of the treatment I have thus described, as having been communisated to me by an old planter in Mauritius, and seen by myself in 12 cases.

French Method of Raising Tomatoes.

The best gardeners in France are in the habit of cutting off the stem in the tomato plants, down to the first cluster of flowers that appear thereupon. This impels the sap into the two buds next below the cluster, which soon push strongly and produce another cluster of flowers each. When these are visible, the branch to which they belong is also topped down to their level; and this is done five times successively. By this means the plants become stout dwarf bushes, not above eighteen inches high. In order to prevent their falling over, sticks or strings are stretched horizontally along the rows, so as to keep the plants erect. In addition to this, all the laterals that have no flowers, and after the fifth topping, all laterals whatsoever, are nipped off. In this way the ripe sap is directed into the fruit, which acquires a beauty, size and excellence unattainable by other means. It will be well for our friends to try this simple and rational method the present season.

CARDINAL WISEMAN AND THE CURE OF DIABETES.—The London correspondent of the *Cambridge Independent* gives the following statement from the Rev. S. Martin, of Trowbridge, as his authority for the paragraph which has been going the round of the journals in relation to the cure of diabetes :—"Some years ago, in the course of my pastoral work, I met with a middle-aged man of this town (Trowbridge), a veterinary surgeon, who was thus afflicted (*i. e.* with diabetes). He had long been given up by the doctors, and appeared to be on the very verge of the grave. Just at that time I heard of a method of cure that had been adopted by a Lutheran clergyman in Germany, with remarkable success, and through the kindness of a friend I obtained the receipt. It is simply this :—The taking of fresh barm or yeast three or four times a day, at the same time meeting the waste produced by the disease on the system by the free use of Dublin porter, and all the solid nourishing food the patient can take. I persuaded my friend, the veterinary surgeon, to try this remedy. For some time after adopting it very little improvement was perceptible. He persevered, however, and, although his recovery was slow, he was at length perfectly restored. In several other cases, too, it has been successful, and, among others, in the case of Cardinal Wiseman. The yeast must be fresh and good, not stale or sour. It may be taken at seven o'clock in the morning, again at eleven, again at four in the afternoon, and again at eight in the evening. Two table-spoonfuls each time, mixed in a tea-cup or tumbler with a little cold water, say the barm and the water about equal proportions. As the disease has such a fearful effect in reducing the system, this must be counteracted, as far as possible, by strengthening diet, chiefly of animal food, which must be confined to small quantities, and often. The friend I have alluded to kept himself well up while taking the yeast by plenty of porter and oysters. I did not know what to say about the latter, however he fancied them, and certainly they agreed with him well. The patient will find advantage, too, from the use of nitric acid. Take of the acid one dracm and a half, barley water nine ounces, simple syrup one ounce. Let them be mixed together, and take two spoonfuls, in the same quantity of water, three times a day. This will not interfere with, but rather assist, the effect of the yeast, and will benefit the system in other ways. Lime water may be used as a drink occasionally. Of course, gin and all diuretics are to be avoided most scrupulously."

WASH FOR FRUIT TREES.—The Massachusetts *Ploughman* gives us this : "Take a pint of crude petroleum and a gallon and a-half of soft soap. Mix intimately, and let the mixture stand until the whole is intimately blended, and dissolve in twenty gallons of water. It is perfectly safe on trees, and it will extirpate all kinds of insects that infest them when it comes in contact with them."

REMEDY FOR LICE ON CABBAGE.—A correspondent in the *Rural American* says there is a remedy for destroying lice on cabbage, as follows :—When the cabbages are about the size of a dining plate, take a half teaspoonful of fine salt and scatter it over each. Repeat about once in ten days, gradually increasing the dose to a tablespoonful if necessary.

PRUNING TREES.—Most people have more time to prune in the fall than in the spring. Choice kinds of vines should always be pruned in November, laid on the ground and covered with a litte earth just before hard freezing begins. Apple and other fruit trees may also be trimmed with good effect immediately after the leaves drop off.

Wild Peppermint as a Rat Exterminator.

Alexander Robertson writes to the *Canada Farmer* : 'I have for the last four years proved to my satisfaction that the wild peppermint is a sure and reliable exterminator of rats. In proof of the fact, I will state the result it has had with me.—Four years ago my barn was regularly infested with rats; they were so numerous that I had great fears of my whole grain being destroyed by them, after it was housed; but having about two acres of wild peppermint that grew in a field of wheat, after the wheat was harvested, the mint was cut and bound with it, and it drove the rats from my premises. I have not been troubled with one since, nor am I at present, while my neighbors have any quantity of them. I feel confident that any person who is troubled with these pests could easily get rid of them by gathering a good supply of the mint and place it round the walls or base of their barns.'

Washing Powder

The excellent washer women of Holland and Belgium, who "get up" their linen so beautifully white, use refined borax as a washing powder, instead of soda, in the proportion of one large handful of powder to about ten gallons of boiling water. They save in soap nearly one-half. All the large washing establishments adopt the same mode. For laces, cambric, etc., an extra quantity of powder is used; for crinoline required to be cleaned, a strong solution is necessary. Borax being a neutral salt, does not in the slightest degree injure the texture of the linen. Its effect is to soften the hardest water, and therefore it should be kept on every toilet table. To the taste it is rather sweet; it is used for clensing the hair; it is an excellent dentifrice and in hot count-ries it is used, in combination with tartaric acid and bi carbonate of soda as a cooling beverage. Good tea cannot be made with hard water. All water may be made soft by adding a teaspoonful of borax powder to an ordinary sized kettle of water, in which it should boil. The saving in the quantity of tea used will be at least one-fifth.

Chloride of Lime

A desinfectant - Will banish vermin and flies, placed in Saucers under tables, drawers &c - & put in rat holes

Cholora to cure

Take 1 tablespoonful of Magnesia in water every hour Prototype 20/4/66

Another Rec.

℞ 1 Tea Spoonful of Cayenne pepper.
1 Table Spoonful of Common Salt
1/2 a pint of Boiling water
Mixed & to be taken as hot as possible.

70 Cases was cured on board an Emigrant Ship in 1849 without one failure - & one case after the Physician had given the patient up.

M. Williams Captain
of the N. York & Liv. Packet -

Caterpillars to kill

℞ Burn Coal Tar in a Fryingpan so that can be carried from tree to tree - It is said to kill them immediately

Tonic

for Mrs A. M. Wilson which gave her great relief in Liverpool. Viz

Bicarbonate of Potash	½ Dram	
——— Do. ——— Soda ———	1 — " —	
Tincture of Orange ———	½ Ounce	
Gentian root, sliced ½ oz.		6 — " — Mix
Orange peel, bruised	1 Dram	
Coriander seeds bruised	1 "	
Boiling water —	12 oz.	
Macerate for 1 hour.		

Dose a desert spoonful 3 times a day also a Compound Rhubarb Pill when required

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To allay Itching

2 Scruples	Tincture Sulphate of Zinc
1 "	Sugar Lead
6 ounces	Water.

Fleas to Kill

Make a decoction of Pennyroyal & throw your Dogs & Cats into it once a week, or wash them Rub them with the Oil pennyroyal, or Saturate Strings with it & tye round their Necks & drop a few drops on their backs—

Dressing Sheep skins for Mats, Robes, Mittens, &c.—Make a strong suds, using hot water; when it is cold wash the skins in it to get the dirt out of the wool; then wash the soap out with clean cold water. For two skins dissolve alum and salt, of each half a pound, with a little hot water, which put into a tub of cold water sufficient to cover the skins, soaking twelve hours; then hang over a pole to drain; when well drained, spread or stretch carefully on a board to dry, tacking them down if necessary. When yet a little damp, have one ounce of saltpetre and alum pulverized, and sprinkle over the flesh side of the skin, rubbing it well; then lay the flesh side together and hang in the shade for two or three days, turning the under skin uppermost every day, until perfectly dry; then scrape the flesh-side with a blunt knife, to remove any remaining scraps of flesh, trim off projecting points, and rub with pomice and rotten stone, and with the hand. Lamb skins, thus prepared, will make beautiful and warm mittens for ladies and gentlemen.—*Journal of Board of Arts and Manufactures.*

Diuretic

Take 1 oz Buchu
Carbonate of Potash 2 Drm.
Mix in a pint of boiling water & drink a little frequently

Pills for Steatizum in the Eye.

Corrosive Sublimate —— 5 Grains
Extract of Gentian enough to Make 50 Pills
One to be taken night & morning but if the Gums become affected discontinue for a short time

Latin

℞ Hydrarg Bichloride gr v
Ext. Gentianæ q. s. ft pil L
Sumati nocte mane que

Very good, also for itching of the Skin

Lotion for the Eye.

℞ Acidi Tannici ½ dr. Zinci Sulph. 4 Gr.
or Acid of Tannin Zinc "
Water 4 oz.

Picture Frames & Glasses are preserved from Flies by Painting them with a Solution of Carbolic acid.

Nervousness to relieve Eat Celery freely in season — when not to be had Eat Onions

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In-growing Toe Nails.

This most painful of the diseases of the nails is caused by the improper manner of cutting the nail (generly the great toe), and then wearing a narrow, badly-made shoe. The nail beginning to grow too long and rather wide at the corners, is often trimmed around the corner, which gives temporary relief. But when it begins to grow wider in the side where it was cut off, and as the shoe presses the flesh against the corner, the nail cuts more into the raw flesh, which becomes excessively tender and irritable. If this state continues long, the toe becomes more and more painful and ulcerated, and fungus (proud flesh), shoots up from the sorest points. Walking increases the suffering, till positively rest becomes indispensable.

Treatment.—We omit all modes of cutting out the nail by the root, and all other cutting or torturing operations. Begin the effort at cure by simple application to the tender part of a small quantity of per-chloride of iron. It is found in drug stores in a fluid form, though sometimes in powder. There is immediately a moderate sensation of pain, constriction, or burning. In a few minutes the tender surface is felt to be dried up, tanned, or mummified, and it ceases to be painful. The patient who could not before put his foot to the floor, now finds that he can walk upon it without pain. By permitting the hardened, wood-like flesh to remain for two or three weeks, it can easily be removed by soaking the foot in warm water. A new and healthy structure is found, firm and solid, below. If thereafter the nail be no more cut around the corners or sides, but always curved in across the front end, they will in future grow only straight forward; and by wearing a shoe of reasonable good size and shape, all further trouble will be avoided.—*Bostwick's Medical and Surgical Journal.*

Odds and Ends.

Remedy for Indigestion.—Half an ounce of ground Turkey rhubarb, one drachm of sulphate of quinine; one drachm of extract of sarsaparilla. Put the sarsaparilla in a cup with three or four teaspoonfuls of cold water; let it stand till it dissolves; then add the other ingredients. Make it into a stiff paste; it will then be ready to make into pills with the use of a little flour. It makes nearly one hundred pills. The dose is two pills every other night.

Do Not Forget the Onions.—In this time of year, when colds and coughs abound, do not forget that onions are often a better and surer cure than drugs. As a correspondent of the Western Rural, says:—'Hardly too much can be said in favor of onions as a remedy for coughs and colds; especially for children, they are invaluable. They may be cooked, and eaten at meal time, or, what is better, eaten raw with a little salt, or stirred up in vinegar. A syrup made of them has saved many a child from an attack of croup or lung fever, and where these diseases were fully settled, it has gone far toward a speedy cure. To prepare the syrup, slice an onion in a tin basin, pour upon it half a teacupful of molasses, or, what is better, honey; add a bit of butter as large as a small chestnut; set the dish in the oven, and simmer slowly for an hour. Leave one of the oven doors open, so it will not be too hot.' Onions are one of the most nutritious and wholesome of vegetables, and were it not for the shocking odor they leave upon the breath, we should advise everybody to eat them daily. As it is, we can only recommend them in cases of necessity.

The Cholera.

It is well established now that the cholera is an enemy we need not fear as if there were no weapons with which to attack it. In truth it is no more dangerous than typhus fever and other epidemics by which we are often unconsciously surrounded, if taken in time.

This is one of the salient facts established by a discussion in the Paris Academy of Science. In nineteen cases out of twenty cholera is the result of a choleraic diarrhoea which may always be easily cured by timely treatment. A French physician, Dr. A. de Brand Boulogne, who, it is said, has passed through fourteen cholera epidemics, makes these remarks as to the presence of choleraic diarrhoea in a letter recently published:—"What is important to know is, whether the diarrhoea be choleraic or not. The general rule in time of epidemics should be to pay the strictest attention to the state of the patient's bowels. If the evacuations be formed of aqueous matter similar in appearance to very clear "cafe au lait." to rice water, to dishwater, or to tea stirred with a few drops of milk, then, whatever be the general condition of the patient, although he may be suffering neither from pain nor weakness, he has the cholera." This condition lasts for hours, sometimes days, before the state of collapse. All that is necessary, therefore, to prevent a fatal attack of cholera is that the patient should lie down, keep warm and quiet and take such remedies as will relieve the diarrhoea. Dr. Boulogne recommends the use of peppermint, of which the patient must drink half a cupful every quarter of an hour, it is to be taken quite hot, sweetened, and with the addition of two tablespoonfuls of rum or old cognac, together with twenty drops of tincture of cinnamon. By this means perspiration is produced, and the infusion is to be continued till the motions are checked. Three hours generally suffice for this. If the medicine thus administered promote signs of intoxication, this is to be regarded as a favorable sign of recovery; if it cause vomiting, then it is to be discontinued, and a small glass of old cognac or of green chartreuse is to be substituted in its place, which is to be taken every quarter of an hour. If the disease reaches a crisis, it is generally necessary to confine the treatment mainly to alcoholized aromatics, energetic fr ctions, injections not too strongly etherized, rubbing of the limbs, and the use of every suitable means for increasing the circulation and exciting the nervous system.

These views and "prescription" are but a practical embodiment of the conclusions arrived at by the Paris Academy of Science Cleanliness, a good strengthening diet, and timely attention to choleraic diarrhoea, if it should make its appearance, are all that is needed in the great majority of cases, to deprive Asiatic cholera of those terrors which are frequently as much aggravated in the mind as real.

To Consumptives Everywhere.—Having seen much suffering from consumption, and knowing thousands of dollars are yearly spent by invalids travelling for their health, and on medicines and physicians, we propose a simple receipt, by which patients may become their own physicians, and if not too far gone, will guarantee a perfect cure, if made and regularly taken according to directions. The ingredients are, horehound, mullein and molasses—ingredients that are within the reach of all, the mullein growing wild in every field, the horehound in almost every garden, and the molasses to be had at any grocery. The directions for making are: Take a large handful of horehound, and boil as strong a tea as can be made. Take up, then boil an equal quantity of mullein in the same way. Take a cupful of the tea of the mullein, and mix together in a suitable vessel, then add a cupful of molasses and stew a syrup—the thicker the better. Take a tablespoonful, or a large swallow, three times a day. Be particular in following directions as to making, and also as to taking it, and we will guarantee relief in all cases not too far advanced. The writer does not claim this receipt as original with himself, but has recommended it, in many cases, with good results. As the ingredients are so common, and so easily obtained, it is best not to make more than a quart at a time, particularly in warm weather, as the fresher it is, the better effect will be produced. Papers of the county will confer a blessing on this, alas! too numerous class—north, south, east and west—by publishing the above receipt.—*Augusta Chronicle and Sentinel.*

Orchard Caterpillers. — Yellowish brown moths or millers deposit eggs in cylinders, or rings, encircling small branches upon fruit trees in the fall. These bulbs usually contain from 200 to 500 eggs, and they are protected from the wet and cold by a coating of peculiar water-proof varnish. In the spring, as soon as the weather is warm enough to start young leaves, the eggs hatch out into worms, and they subsist upon the foilage of trees (if not destroyed) for a number of weeks, and then encase themselves in cocoons and undergo a transformation, and appear again as moths or millers. The eggs are usually deposited near the extremity of a branch, and can be readily seen. The best time to destroy them is early spring. Take a common fruit ladder and go through the orchard, clipping off every twig containing a bulb, and put it into the fire. Each bunch of eggs thus removed, destroys hundreds of caterpillars, that would require ten times the amount of labor with coal oil, soap-suds, &c., to eradicate one month later.

BAD NEWS FOR THE RATS.—According to the French *Moniteur* there are in France upwards of two thousand millions of rats and other rodents. Supposing each of these little quadrupeds to commit the damage of only one centime per annum, this loss would amount in the aggregate to 20 millions of francs annually. Hence it is most desirable to find some means of destroying this vermin in large numbers as expeditiously as possible. Nux-vomica, arsenic, phosphorus, and traps have been successfully tried, but with no very decided success, and certainly not equal to the rate of increase of these prolific creatures. Recent experiments, however, show that squills (*Scylla maritima*), the enormous bulbous root of which is much used in medicine, is not only a powerful poison for rodents, but also one they are very fond of. The way of preparing it for the desired purpose is as follows :—One of the bulbs is cut into slices, hashed and bruised, then done in the pan with fat, which is afterwards strained through a cloth and poured into broken plates and saucers to be placed in the cellars and other places infested with rats, mice, &c. To prevent dogs and poultry from eating of this poisonous compound in stables, pigeon-houses, or farm yards, it may be put into a wooden box, about a foot and a half long, and having a hole at each end. The rat gets in at one end and goes out at the other, after partaking of the noxious food, which soon kills it. Squills may also be reduced to powder, for the same purpose, by bruising them in a mortar to a pulp, which is afterwards incorporated with as much flour as it will hold. This paste is then rolled out, as they do for a pudding, then cut into shreds, which are left to dry on hurdles or on sheets of pasteboard, and are afterwards pounded in a mortar. The powder thus obtained will keep for years, and may be put into boxes or barrels. If manufactured on a large scale it may become a profitable article of exportation. In Algeria squills cost nothing, the country being absolutely overrun with them.

LIME AS A SOIL IMPROVER.—Old gardens are frequently unproductive through being manured year after year with the same kind of manure, and growing the same crops. In such cases the vegetables are rank in growth and ill-flavored. Potatoes and other roots watery and liable to disease, and peas and beans unproductive, and cauliflowers and cabbages subject to club disease. When such is the case, use no manure for a couple of years. The first spare ground you get, trench it two spits deep, if the ground will allow of it, and thoroughly mix with the earth, as you turn it over, a good dressing of fresh slacked lime, the fresher the better. My plan is, when the top spit is thrown to the bottom of the trench, to throw over the hot lime and to fork it in, and to repeat the dose of lime over the lower spit thrown to the surface. Employed in this way, lime acts as a complete renovator of old and over-manured soils, as the produce afterwards will show. The second year I repeat the lime dressing (about half the quantity of the first year), forking it in instead of digging the ground, as by that means the lime becomes more completely mixed with the soil. I add also a surfacing of road scrapings, if the ground is heavy, or inclined to be so. By these means, giving up manure for two years, I have succeeded in bringing an old garden soil, which would positively grow nothing well, into a first-class soil, producing good crops and of the best quality.—*Am. Fruit Culturist.*

DESTRUCTION OF INSECTS IN ORCHARDS.—M. Mellot Brule, a distinguished French horticulturist, has demonstrated, by experiment, the efficiency of the powdered proto-sulphuret of iron (which has been before used for the preservation of timber) in destroying noxious and annoying insects. The powder may be strewed over the ground, around the roots of the tree, or fixed on the surface of a collar surrounding the stem. No insect will pass it; or, if they attempt they are immediately killed. The pro-sulphuret of iron (black pyrites), is manufactured for the purpose of developing sulphuretted hydrogen, which is undoubtedly the effective agent in destroying the vermin.

At a dog pound in New York, a valuable dog of any breed is always preserved, and, if not called for, sold. The brutes, after being kept for forty eight hours, to afford time for reclamation, are placed in a large trough and covered over. Water is then let in upon them and they are drowned. A company which buys the carcasses of horses and cattle, also purchases the bodies of these dogs, and after skinning them, boils them up with those of other animals for the grease which they yield. The residue is sold for manure. The skins of these dogs make good gloves, and vary in value from 25c to $1.

WHITE HELLEBORE VS. CURRANT WORMS.—For two years we have used hellebore on our currant bushes with perfect success. Last year the worms were under full headway, when I first discovered them. I then went to work powdering the worms, and underside of the leaves. when another brood was hatching. I pursued this course three or four days; then, after waiting a day or two, I took my powder, and went out for another attack. But there was not a worm to be found, nor did they return at all.—*Rural New Yorker.*

SUBSTITUTE FOR MANURE.—Hearth and Home says the following recipe for raising potatoes is worth the price of any paper for one year to any farmer who is short of manure. It is as good as the superphosphate of lime, and will not cost half as much. If has been tried two years, and is good on dry land : "Take one cask of lime and slake it with water, and then stir in it one bushel of fine salt, and then mix in loam or ashes enough that it will not become mortar: it will make about five barrels. Put half a pint in a hill at planting. All manures containing potash are particularly for the potato. Ashes contain more than any other natural fertilizer, and should be freely used and carefully saved. Any farmer seeing the analysis of the ashes of potatoes can readily imagine what fertilizers produce the greatest effect, and what the plan most needs."

HOW TO DISINFECT.

Some most excellent directions as to the mode in which persons and things can be readily and satisfactorily disinfected have been circulated at Oxford. We fancy we can trace the hand of a well-known Oxford physician in their treatment. The directions run as follows:—(1) Rooms can be disinfected by burning brimstone in them. Doors, chimneys, and windows must be shut whilst this is being done, and any clothes or carpets belonging to such rooms may, previously to further disinfection (for which see below) be with advantage spread out on ropes in such rooms during the process. No disinfection of this kind is thorough if a man can live in the room whilst it is going on. Some volatile agents may perhaps protect against certain infectious diseases; but small-pox and cholera have never been shown to be controllable by such means within rooms occupied by human beings, without being at the same time injurious to their lungs and lives. Hence may be seen the inexpediency of recommending for our purposes at the present time, certain substances commonly used in such rooms, which may be pleasant as deodorisers, but are known to fail as disinfectants. For living rooms whilst occupied it is all important to insist upon good ventilation, and for such good ventilation it is requisite that all the air of such rooms should be changed. This is best done by seeing that fresh air is admitted as nearly as possible on a level with the ceiling. In every sick room one or other of the solutions mentioned below should be placed in any utensil which is liable to be used by any person suffering from any infectious disorder. Thus the evacuations can be disinfected before they can become mischievous. (2). Water-closets, privies, cesspools, and drains can be disinfected by copperas (sulphate of iron). Carbolic acid can be used with advantage in company with or after, but not without copperas. A certain quantity of disinfectant will disinfect only a certain quantity of foul matter, and disinfection is imperfect till all "hot" smell or alkaline reaction is abolished. For the disinfection of a cubic foot of filth ½lb. of copperas in a couple of quarts of soft water is sufficient. The daily addition by each individual using a water-closet or privy of two-thirds of an ounce of solid copperas to such privy, or one-third of a pint of the above solution to such water-closet, will keep it wholesome if any accumulation of filth which it may contain or communicate with has been previously disinfected according to the directions given. Carbolic acid can be used after the addition of copperas till the place smells strongly of it. It should be used in the fluid state, its combination with lime and magnesia having an alkaline reaction, and being, therefore, unsuitable. It may be diluted by being shaken up with 20 times its volume of water, and if poured from a watering-pot with a rose-nozzle over the sides of a recently-emptied cesspool will do great good. Sawdust or sand strongly impregnated with carbolic acid may be used also. Chloralum will acidify ordinary sewage, and destroy its living organism when added in the proportion of 1 part to 40. It may be expected therefore to act as a disinfectant. This cannot be said of chloride of lime. All water-closets or privies should when epidemics or typhoid fever may be expected be disinfected whether they are offensive or not. It is well at such periods to avoid using any such conveniences which have not been disinfected, especially if, at hotels and railway stations, they may have been used by persons from infected localities. All the conveniences mentioned need ventilation as much as living rooms do. 3. Body and bed-clothes should be disinfected either by immersion in Burnett's solution (chloride of zinc), diluted in the proportion of a pint to a gallon of water, and kept in a glazed vessel by prolonged boiling. 4. Woollen clothes may be disinfected in an oxen at a temperature of 250 deg. Fahr. It is well to burn anything infectious which we can afford to burn.

These directions are so admirable that we have given them at length. They are simply stated, and may be followed with confidence and without difficulty. Their publication, moreover, appears at a very opportune moment.

DISINFECTION OF THE RIVER LIFFEY BY CHLORALUM.—During the last few days the public health department of the corporation of Dublin have been occupied in disinfecting the foreshores of the Liffey, which bisects their city. This river has long been notorious as a source of odours as vile and as numerous as those which offended the nose of the poet Coleridge during his celebrated visit to Cologne. The foreshores are left high, but not *dry*, for several hours daily, and during this time they exhale, in warm weather especially, a very bad odour. They have now been cleansed of the foul deposits of mud and filth, and disinfected by chloralum, at the rate of one pound per 25 square yards. The experiment proved, we are informed, perfectly successful.—*The Chloralum Review.*

ANTI-VACCINATION.—A man named Tarr has been brought before the magistrates at Manchester charged with neglecting to have his child vaccinated. He alleged that one of his children had been poisoned through vaccination, and he refused to become a party to "murdering" the other. The magistrates declined to discuss the wisdom of the law, but adjourned the case for evidence as to whether the child was in a fit state for vaccination.

CRACKS IN STOVES.—It may be convenient to know a ready method of closing up cracks, which are not uncommon in cast-iron stoves; and we are assured that the following recipe is a reliable one:—Good wood ashes are to be sifted through a fine sieve, to which is added the same quantity of clay, finely pulverized, together with a little salt. The mixture is to be moistened with water enough to make a paste, and the crack of the stove filled with it. This cement does not peel off or break away, and assumes an extreme degree of hardness after being heated. The stove must be cool when the application is made. The same substance may be used in setting in the plates of a stove, or in fitting stove pipes, serving to render all the joints perfectly tight.

WATERPROOFS.—The Lounger of the *Illustrated Times* says:—"By the way, touching waterproofs, I think I can give travellers a valuable hint or two. For many years I have worn India-rubber waterproofs, but I will buy no more, for I have learned that good Scottish tweed can be made completely impervious to rain; and, moreover, I have learned how to make it so; and, for the benefit of my readers I will here give the recipe:—In a bucket of soft water put half a pound of powdered alum; stir it at intervals until it becomes clear; then pour it off into another bucket and put the garment therein, and let it be in for twenty-four hours, and then hang it up to dry without wringing it. Two of my party—a lady and gentleman—have worn garments in the wildest storm of wind and rain without getting wet, The rain hangs upon the cloth in globules. In short, they are really waterproof. The gentleman, a fortnight ago, walked nine miles in a storm of rain, and when he slipped off his overcoat, his under clothes were as dry as when he put them on. This is, I think, a secret worth knowing; for cloth, if it can be made to keep out wet, is in every way better than what we know as waterproofs."

TO REMOVE STAINS FROM BROAD CLOTH.—Take an ounce of pipe clay which has been ground fine, mix it with twelve drops of alcohol, and the same quantity of spirits of turpentine. Whenever you wish to remove any stains from cloth, moisten a little of this mixture with alcohol, and rub it on the spots. Let it remain till dry, and rub it off with a woolen cloth, and the spots will disappear.

The Cholera.

Medical men in Europe are actively engaged in devising the best means to grapple with the now present cholera. Dr. Lisle, of Paris, says that he has cured twenty-one cases of cholera out of twenty-six by administering a solution of five parts sulphate of copper to 100 parts distilled water, about thirty drops, to which add ten drops of Sydenham's laudanum and 4 oz. of sugar and water. Dr. Drouet advocates a solution of castor-oil in collodion being applied with a brush to the abdomen. The mixture forms a waterproof film which prevents perspiration, and vomiting and cramps are instantly arrested.

How to Keep Eggs Fresh.

To keep eggs fresh for any reasonable length of time in hot weather has always been a puzzling matter, not only to dealers in the article, but to housekeepers. We publish below, for the benefit of our numerous readers, a receipt that promises to obviate the difficulty, warranted to keep eggs fresh for at least a year. In the summer season, when the article is cheap, it will be gratifying to know that it can be preserved by wholesale at a moderate outlay, and produced in a twelvemonth afterwards as fresh as when the eggs were first laid. The receipt is very simple, and is as follows:

"Take perfectly fresh and sound eggs, and then pure water. For every three gallons of water put in one pint of fresh slaked lime, and of common salt one half pint. Mix well, and let the barrel be half full of this liquor; then, with a dish, let down the fresh eggs into it, tipping the dish after it fills with water, so that they may roll out without cracking the shell; for, if the shell should be cracked, the egg will spoil."

Weeds in Walks.

Those who have made walks in lawns and pleasure grounds have had no little trouble in keeping them free from unsightly weeds. Many devices have been employed to overcome the difficulty, with varying success. The following, from the *Canadian Farmer*, can be easily applied, and is well worth a trial:—"A most efficient agent for the destruction of weeds, and one not expensive, can be made by boiling four pounds of arsenic and eight pounds of soda in twelve gallons of water. To every gallon of this mixture should be added three gallons of cold water, and the liquid carefully sprinkled over the walks while it is yet warm. It is desirable to do this in fine weather, and when the walks are dry, so that the weeds and weed seeds may have full benefit of the application. Care must be taken not to let any of the liquid fall on the leaves, or reach the roots of any plants it is not desired to kill. In twenty-four hours after the poison is put on the walks, every weed will be killed; and if it be once thoroughly done, it will keep the walks clean through the whole season."

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