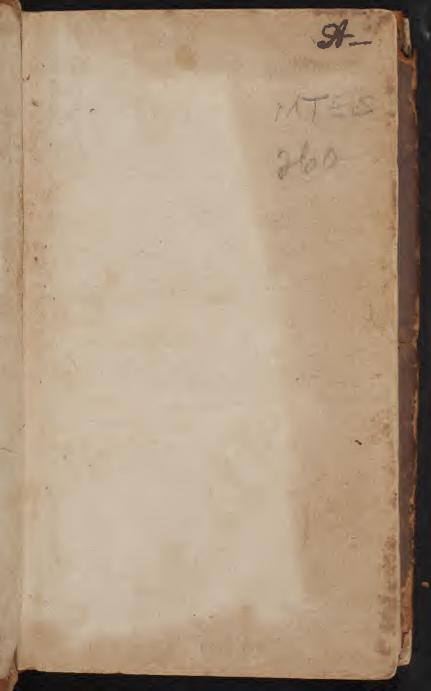
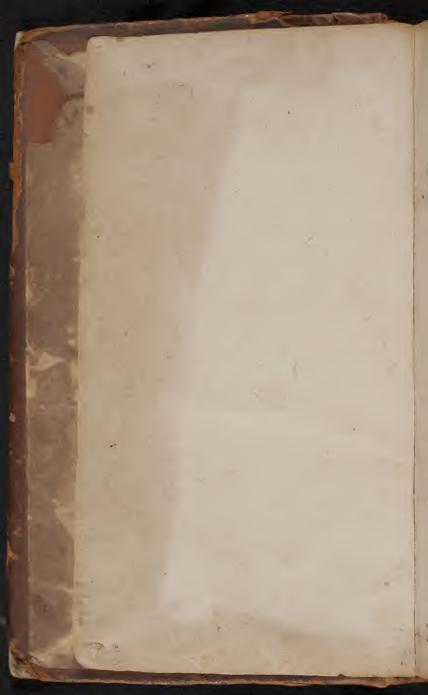


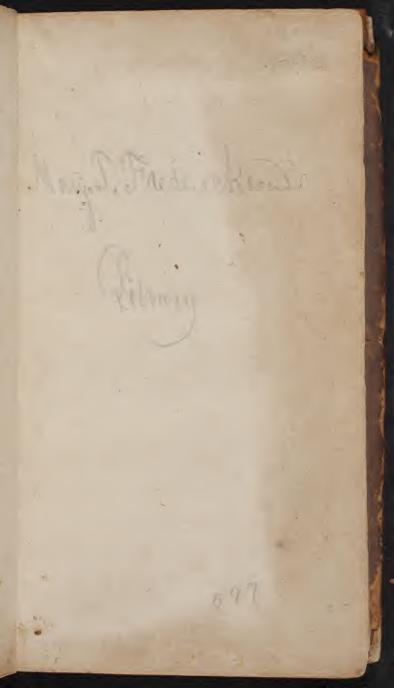
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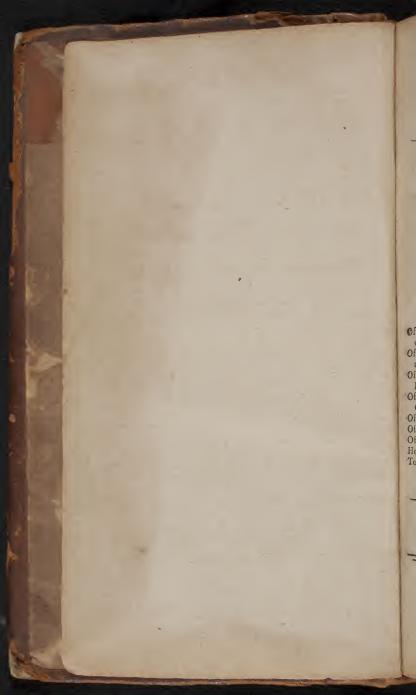
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## ARTS AND TRADES:

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DIRECTIONS, from the best ARTISTS.

#### FOR THE VARIOUS METHODS

- Of engraving on Brass, Copper, Of Painting on Glass. or Steel.
- Of the Composition of Metals, and Varnishes.
- Of Martichs and Cements, Sea- The Art of dying Woods, ling-wax, &c.
- Of Colours and Painting, for The Art of Moulding. Carriage Painters.
- Of Painting on Paper.
- Of Compostions for Limners. Of Transparent Colours.
- How to dye Skins or Gloves.
  - plate Prints.

- Of Colours of all Sorts, for Oil,
- Water, and Crayons. Of the Art of Gilding.
  - Bones, &c.
- The Art of making Wines.
- Of the various Compositions
- of Vinegars. Of Liquors and Effential Oils.
- Of the Confectionary Art.
- To colour or varnish Copper- Of taking out all Sorts of Spots and Stains.

Hæ tibi erunt Artes! VIRG.

NORWICH:



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## SECRETS

CONCERNING

### ARTS and TRADES.

## CHAP. I.

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SECRETS relative to the Art of ENGRAVING.

#### 1. A wax to lay on iron or steel.

AKE the bulk of a nut of white wax: melt it, and add to it the fize of a musquet ball of ceruse of N. nice. When both are incorporated together, form this compession into small sticks. With them rub your piece of steel, or iron, after having previously warmed it sufficiently to melt the wax, which you will spread well over it with a feather. When the wax is cold, trace whatever you will on it, and pass afterwards, on the lines you shall have drawn, the following water.

### II. A mordant water to engrave on steel.

r. Take good verjuice in grapes, the strongest you can find; alumin powder, and a little salt dried and pulverised. Mrx all together till perfectly dissolved: then pass some of that water on the lines of your drawing, repeating the same, till it is sufficiently deep engraved. That engraving will appear white, as silver, on a white ground.

and common falts, and copperas, equal parts. Set all together a-boiling, for a quarter of an hour: then firth it through a rag, and run fome of that water on your

d place:

plate. In about half an hour afterwards it will be

perfectly engraved.

3. CALLOT's varnish, of which the composition shall be found hereafter, in the Chapter on Varnishes, is an admirable composition to lay on the plate you propose to engrave.

III. To engrave with aquafortie, fo that the work may

aptear like a basso relievo.

Take equal parts of vermilion and of black lead: two, or three, grains of mastick in drops. Grind them all together, on marble, with lintseed oil; then put this composition into a shell. Next to this operation, cut some fost quills, and let your steel or iron be well polished. Try first, whether your colour runs sufficiently with your pens: and, if it should not, you must add a little more oil to it; without making it, however, too limped; but only fo as to have your pen mark freely with it, as if you were writing, with ink, on paper. Then rub well your plate of fleel with wood ashes, to clean and ungrease it; after which, you wipe it with a clean rag, and draw your design upon it, with your pen, prepared as besore, and dipped into your liquor. If you want to draw birds, or other animals, you must only draw the outlines of them with your pen, then fill up the infide of those lines with a hair-pencil; that is to fay, you will cover all the space, contained between the first outlines drawn with the pen, with the same colour, which you will lay with a brush, to preferve all that part against the mordacity of the aquafortis. When thet is done, you let your work dry for a day or two. When dryed thus, you take some fire, made with charcoal, into a chaffendish, and bake over it your colour, by degrees, till it becomes quite brown. Take core notwithfranding not to burn it, for fear you should scale it when you come to scratch, with the point of a needle, those etchings, or places, which you want to be engraved, with the following aquafortis.

Take verdigrife, roch alum. Roman vitriol and common falt, of each three ounces; which you will pound into a very fine powder. Have a rew pipkin, in which you will put a little more than a quart of water, and

your

your drugs, all together. Let them thus infuse a couple of hours; then place them over a charcoal fire: and, when the water has a little simmered, take the pot from off the fire and let it cool so, that you may dip your hand in it without scalding. Then have an earthen cap, with which you take of that water, and pour it over the work you mean to engrave; so that it may run well, and freely, over all the places which are to be marked, and then offinto a pan placed under to receive it. Continue thus to water your work for three quarters of an hour. Then you will pour upon it clear pump water, to wash off the mud which the aquafortis shall have occasioned. You are then to try, with a needle, the depth of the lines of your engraving : and, if not at your liking, you must begin again watering it, as before. The only care you are to have, is, that your liquor should not be too warm: for, then, it would spoil the work. It is better to use it lukewarm only and be longer at it.

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V. To engrave on brass, or copper, with aquafortis. You must put in your colour more mastick in drops, and bake it also rather more over the fire, after it is laid on your plate; so that it should turn almost black. And, if it be a flat work, as generally are all those on copper plates, you must raise around it a border of wax to prevent the aquafortis, which you are to pour on it, from running off, and which is to be a separating aquafortis with which you cover the plate to the thickness of a crown piece. After it has been thus left covered with that aquafortis, for a little while, this becomes green: then, is the time to throw it away, and to pour, in its place, some pump water, when you will examine whether the lines be sufficiently deep or not. If not, pour again fresh aquafortis on your plate, and thus you will obtain works of baffo relievo by contrary; that is to fay, raised grounds. You may thus engrave all forts of works.

VI. To engrave prints, by aquafortis.

Take fome ceruse, which you will grind well with clear pump water, and fize it with isinglass. Lay this composition, with a coarse brush, or pencil, on the plate which

which you want to engrave. When it is dry, draw on it whatever defign you pleafe. Or, if you want to counterproof a copperplate print, blacken all the back of your print; and, placing that blackened part on your plate prepared as before, go over all the firekes of your print, with a importance, or wooden, point; which will flamp the black of the print, in all those places on the plate. Then you will go agric over all the black strokes, which are laid on your plate, with a pen and ink; and, taking afterwards a steel point, very fine and well tempered, you will etch your plate with it, in following all the strokes marked on it, and pour aquafortin, as before directed.

VII. Another.

Take white lead, and grind it well with mafick in drops. Cover your plate with it by means first of a bruib, and then smooth it with the soft part of a goose seather. Let this dry, for a day or two; then give a second coat, of this composition, over the sirst; and spread it with the palm of your hand. When dry, bake it over charcoal, till it comes a little yellow; then draw what you will over it, with a black lead pencil; and proceed afterwards, as before directed.

VIII. The method of engraving with aquafortis.

1. You must have a very well polithed plate, and perfectly clean. Set it to warm over a chasing dish, in which there is a charcoal fire. While on it, cover it with a varnish, either dry or liquid, for there are two forts. Then you blacken that varnish with the slame of a candle, over which you pass, and repass, the plate on the varnished side.

2. This being done, you have no more to do than to chalk your defign on that plate, which is infinitely more easy than to engrave with the graver. For, if you rub the back part of your drawing with some sanguine stone (red chalk) or any thing else, and lay it afterwards on your plate, to trace it with a point, the sanguine, which is on the back of the draught, will easily set off on the varnish. So that you may sollow afterwards all the lines of the design, and be infinitely more

correct in all the turns, and the expression of the figures. This is the reason why all the painters, who have their own works engraved, take the trouble of drawing also the outlines of their figures, that the spirit and beauty of the design may be preserved. Indeed it must be confessed, that we always discover a great deal more art in those pieces which are engraved with aquasortis, than there is sound in them that are done by the graver. And, even in many of these, the aquasortis is often employed to sketch lightly the contours, or outlines, of the figures, and to have them more correct.

3. True it is, that it is some times found necessary to touch a little over, with the graver, certain parts which are not strong enough, or that the aquasortis has not eaten in sufficiently. For it is not easy, in a great plate, to get all the several parts so proportionably, and a-proson, eaten in, as there should be nothing to find fault

with.

4. It is not enough for an engraver to work with the point of his needle, or fcooper, in all the different places of his work, with the strength and delicacy necessary to make appear, as he wants them to be, the most remote and the nearest parts. It is again requisite that he should take care, when he comes to put the aquafortis on his plate, it should not bite equally every where. This is prevented, as follows, by a mixture of oil and tallow, which you will drop in it, from a lighted candle.

5. To this effect he must have a framed wooden board, over-laid with wax, on which he fixes his plate a little flant way: then pours aquefortis on it, so that it may only pass over it, and run into an earthen pan, placed under to receive it. Therefore he takes care to examine when those parts, which are not to be so deeply eaten in, have received a sufficient quantity of aquafortis: in which case, taking off his plate, he washes it with pump water, by pouring it only over; dries it gently before the fire, then covers the most remote parts, and them which he wants to preserve weakest, with the above mentioned mixture of oil and tallow, that the aquasortis should not act, any more, on those places. Thus, covering at several times, and as much as he plea-

fes, such places of his plate as he wants to keep not so strong as others, it results that the sigures, which are forwards in the picture, are constantly every time washed with the aquasortis which eats in them, till he sees they are sufficiently engraved, and according to the degree of strength which he is desirous of giving them.

6. That fort of aquafortis we have mentioned and defcribed in this chapter at the article of the water for engraving on iron, and which is composed with verdigrise, vinegar, common and ammoniac salts, and copperas, is also made use of to engrave on copper, in pouring it on the plates, covered either with hard or fost varnish, and scratched, or etched, agreeably to the design you in-

tend to engrave on them.

7. As for what concerns the refiner's aquafortis, commonly called white quater, it is never used but upon the soft varnish: and never as the former, which is called green water, by pouring it only over the plate, and letting it run offinto a pan under it. A border of wax must be made round the plate, on which, this being laid stat upon a table, some of that quater is poured, after having previously tempered it more or less with a proportionable quantity of common water, which is called pickling.

IX. To engrave on wood.

You begin by preparing a hoard, according to the fize and thickness you want it, and finely polished on the fide it is to be engraved. The fort of wood, which is generally chosen for such a purpose, is either pear-tree or box. And, of the two, this last is even hill preferable, both on account of its being of a supérior hardness, and also less liable to be worm-eaten. On that board you draw first your design, fach as you want it to appear in printing. They, who have not the talent of drawing, as there are a great number, make use of the very drawing you give them, which they paste on their board, by the right fide, with a paste made of good flour, water, and a little vinegar. You must take care that all the strokes of the drawing should touch well, and stick on the wood: and, when the paper is very dry, wet it gently, and with the tip of your finger rub it off by degrees, fo that the strokes only of the drawing should remain

main on your board, as if you had drawn it with ink and a pen. These strokes, or lines, shew you all that you are to spare, or preserve; all the rest you are to cut off and sink down with delicacy by means of a sharp and well tempered pen-knife, small chifel, or gouet, according to the size and delicacy of the work, for you have no need of any other tool.

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## X. To engrave on copper with the graver.

1. When the plate, which is to be of red copper, is well polified, you draw your defign on it with either the black lead-stone or a steel point. When that is done, you have no further need of any thing but very sharp and well tempered gravers to cut in, and give more or less strength to certain parts, according to the subject, and the figures, you execute.

z. You must also have a certain tool of fix inches long, or thereabouts, one of the ends of which, called a fcraper, is made in the form of a triangle, sharp on each edge, with which you scrape on the copper when you want it. The other end, called a burnisher, has very much the shape of a fowl's heart, a little prolonged by the point, round and slender. This serves to polish the copper, to mend the faults, and soften the strokes.

3. In order to form a better judgement of your work, you must now and then, as you proceed on, make use of a stump, made with a piece of an old hat rolled up and blackened, with which you rub your plate, on the place you are working, which fills the strokes with black, and makes you see better the effect of your work, as you go. You must be provided likewise with a leather cushion, on which you lay your plate, while you engrave it.

4. We shall not give any further account of the art of engraving than this short epitome, and we shall not attempt to enter into a more particular detail of the various and curious circumstances attending this noble art. They, whose curiosity, on that so bject, will prompt them to be more particularly acquainted with it, may amply satisfy themselves, by taking the trouble to read the treatise which Abraham Bosse has purposely composed, on the art of engraving.

XI. To engrave on feel or iron; such as blades of

swords, knives, &c.

1. Take one part of linden-tree coals; two of vitriol, and as much of ammoniac falt. Grind all together with vinegar, so as to obtain a fost passe of it. Then, whatever you want to engrave on steel or iron, begin first by sketching it with vermilion diluted with lintseed oil, which you shall have put a-drying to use it afterwards like a pencil. When your drawing is done, cover it with the above mentioned passe to the thickness of a singer. This composition must be applied warm; and the more warm it is, the sooner the work will be engraved; though you must have care not to burn it. When this composition is well dry, take that powder off, and wash well the engraved place.

2. You may to the same effect take Spanish verdigrise, or common salt, one part; and while you pound it in a mortar, add some very strong vinegar, and proceed as

above

3. Some make use of vitriol, alum, common salt, and linden-tree coals, which they prepare and use as above directed.

XII. A water to engrave on iron or copper.

1. Take Spanish verdigrise, sublimate mercury, vitriol, and alum, equal parts. Pound it all well in a mortar, and put it in a glass vessel sufficiently large, with a proportionable quantity of the strongest distilled vinegar. Let the whole thus infuse for twelve hours, slirring it often. Draw next what defign you like on a coat of wax laid on your iron, or copper, either with a steel point, or fictitious other, mixed with lintfeed oil. Then pass some of your liquor on the places you shall have etched with a needle or steel point, in following carefully the firokes of your definn, if it be first drawn on wax. For, in the use of this method, you must not fail to begin by covering first your plate with it, as we said eliewhere. You may again lay on your design, prepared as we faid, some sublimate alone, finely pulverised: then pour overit good strong vinegar, which you will let lay for the space of half an hour, after which wash it with cold water, and clean off your plate. XIII. Another

XIII. Another more mordant avater.

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1. Take Spanish verdigrise. alumen plumeum. ammoniac falt, tartar, vitriol, and common falt, of each a quarter of an ounce. When the whole is well pounded, and mixed with the strongest vinegar, let it thus remain for the fpace of half an lour. If you want to have your design raised, make it with f. Elitious ocher and lintfeed oil, well ground and mixed-together, and let it dry perfectly. Then fer the aforefaid water awarming over the fire in an iron pan well tinned with lead; and, leaving it on the are, take your feel plate, and holding it in one hand over the pan, take with the other of the warm liquor, with a spoon, and pour it on your plate; fo that, by falling again into the pan, you lose none of your water. Continue so doing, for a quarter of an hour's time: taking care, however, your water should not be too warm, lest is should set arunning the oil which is mixed with the varnish. When this is done, rub the aforesaid composition with pot-ashes mixed with an equal quantity of quick lime in powder, and you will find that what was covered with the composition will be preserved, and raised from the other parts of the plate which are eaten down.

XIV. An ardent water to engrave fiel deeply, or even eat it off entirely.

Take two quarts, or thereabout, of thick black wine, the oldest and the best you can find. Dissolve into it quick lime, and brimstone in powder, wine tartar and white salt, of each equal parts, and as much of the whole as there can possibly be dissolved in that quantity of wine. You shall next put all that mixture into a cucurbit, or rather in a retort well luted. Adapt to it a holt-head to serve as a receiver. Lute well the joints, then give it the heat gradually. There will distill a very mordant water, which you may keep in a phial, carefully slopped, for use.





#### CHAP. II.

#### SECRETS relative to METALS.

## I. A secret to canse the transmutation of iron into the finest German steel.

twelve ounces, and four of pounded garlicks: Boil all together in twelve pounds of common water, reduced to a third, or four pounds. Strain this, and dip in it the iron pegs, which you will atterwards stratify

with the following cement.

2. Take burnt wood's coals, otherwise called coker, and quick lime, of each three pounds: foot dried, and calcinated in an iron pan, one pound: decrepitate salt; sour ounces. Make of this and your iron several beds alternately one over another; and, having well luted the vessels in which you shall have made those beds of iron and cement, give them a reverberating fire, for three times twenty-four hours, and the operation is done.

#### II. To make tin.

Take a differctionable quantity of rye-bran quite pure; boil it a minute or two in vinegar, then add to it a little water, and in that same instant plunge your sheets of black iron: then take out of the sire, and stop well, the vessel. Let your iron rest there and soak for twenty-four hours, after which time take off your iron sheets; store them well with the very bran with which they have been a-soaking, then rub them over a little with grindstones. This being done, make them soak again in a water wherein you shall have dissolved some ammoniac salt, whence having taken them off, set them addraining, and rub them afterwards with rye-bran, and your tin will be done.

Observe that the vessel in which you lay your sheets soaking, must be large enough to receive them in their

full intended fize.

III. To break an iron bar as big as the arm.

Take melted foap with which you will rub your iron bar at the place where you would have it break. Then with any thing take off and clean away part of that unction, in the middle of it, about the width of half a crown. Then take a fponge, dipt into ardent water of three distillations; bring it round the bar, and, in fix hours, it will break.

IV. Another for the same purpose.

In two pounds of aquafertis, diffolve orpine, fulphur, regal, and verdigrite, one ounce of each: of quick-lime, killed in two ounces of triple-diffilled vinegar, one ounce. Place the whole in an alembic with one ounce of faltpetre, and two of ammonic falt: and, having given a gradual fire to it, you will take the spirits which shall have distilled, and put the emigain over the faces or residue, with an addition of two ounces of pulverised arsenic. Distill this a new, and keep what arises from it. In this, if you dip an handkerchief and turn it round an iron bar, in three hours time it will break with the greatest ease. You must only take a great care to guard yourself against the sumes, in distilling this composition.

V. To compose a metal of a gold colour.

Take refiner's copper fix ounces: melt them into a crucible; add one-ource of calaminary stone; half an ounce of tuty, and one of terramerita, in powder. Give to this a melting fire for five or fix hours running, and no more: then take off the crucil I: from the fire. Put this composition in powder, and and to it two ounces of common mercury, fix of fea falt exfectated, and a fufficient quantity of water. Set the who ea-boiling until there appear no more mercury. Then put the mitter into a crucible and place it between two fires of kindled coals, avoiding carefully the breathing of the fumes, Give this a melting fire, for two hours, then wash the composition in water, till this runs off quite clear. Set this again in a crucible: and, w. en melted, pour it into an ingot. This will give you a metal, of the most benutiful gold colour which can be defired, and which you may make use of for plates, buckles, fauff-boxes, caneheads, &c. But one cannot recommend too much the avoiding

everling of breating the fumes of this composition, - while he is making.

VI. Another competition of metal.

Take a certain renionabl quantity of the leaves of Perfi acia urens, ca'led Erfnart, or, vulgarly, Waterpeop r, which you will dry in the shade. Welt in a crucible fix ounces of refiner's copper, and, when melted, throw in one ounce of powder of the arimart's leaves, or even half an ounce : then cover the crucible with an iron lid, and keep this matter in fusion for the space of on our, after which you cult it in an ingot. This procels will give you a metal which (except the colour that atiffs can at any time give it by an industry well known to them) has otherwise all the qualities of gold. The only delect is, that it cannot bear testing, and that is must therefore serve only to scoply common copper which rusts easily, and has not so much brightness. It may be used for cardlesticks, and other similar works.

We thought it was proper here to give this receipt, as it is to be wished we could make our selves those metallic compositions, which we import from Holland, and

other coutries.

VII. To defolve gold in your naked hand.

Distill hart's bood just killed: and, aft r having drawn the spirits per afcensum in balneo-mariæ, cohobate again three different times. At the third diffillation you Sublime all the fixt : and, when done, lute well the veffel, and keep the liquor for use. This liquor, carefully preferved, will diffolve gold in the naked palm of your hand.

VIII. How to give some perfection to imperfect metals.

It is well known that gold is the most perfect of metals After this comes filver, the principles of which are very near pure, and equally proportioned between them as those of gold. All other metals are reckoned imperfect and crule. Among them however that which appro ches nearest to persection, is copper. This therefore may eafily be pur feet, by being delivered of all the superficial and combuildble fulphurs with which it is loaded. And whoever will proceed, according to the following direction, will not fail to obtain it. I. Take

1. Take what quantity you please of copper. Set it in a crucible over a melting fire. While melting in that trucible, throw in at different times some tutty powder mixed with equal parts of refined saltpetre. Then, the detonations being made, take the crucible out of the fire and let it cool. Break the crucible and separate the scories from the regulus. Put the copper-regulus into another crucible, and reiterate the same operation three times, till the copper is extremely fine and true gold colour.

2. Now, if you fet it a-melting for the fourth time, and project on it perficaria's or hydro-pepper's leaves powder, you will render it still more perfect: and you might thus purify it so far, as to give it, at last, all the

qualities of gold.

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3. Whoever will know how to purify brass from its foreign sulphur, will turn it likewise into a very fine silver.

4. You may also whiten lead; and, giving it the

hardness of filver, render it similar to it.

5. Pewter and quickfilver may likewise be purified, in separating from this last its arsenical sulphurs, and fixing it by the supplement of a fixt, metallic, incombustible and solary sulphur. The other may, by taking off from it its supersuous saline part, and uniting its mercurial one to the true metallic sulphur. But this we cannot expect to attain, if not previously versed in the method of dissolving, analysing, and dividing or separating, and then re-embodying again metallic substances; and this is known by none but the sons of the art, the adepts alone.

IX. To melt all forts of metals in the shell of a nut, without

Take faltpetre two ounces; fulphur half an ounce; oak's, walnut trees, or any other very drv wood's fawdust half an ounce. Let the faw-dust be sisted very fine, and the faltpetre and sulphur reduced to an impalpable powder. All this being well mixed together, fill the shell of a nut with it to the brim; then lay over it a piece of gold, silver, or any other metal you please; and, having covered it again with the same powder, set the sire to it, and you will see that the metal will melt and remain at the bottom of the shell.

X. To increase the virtue of a loadstone.
You must let it soak, for forty days, in iron-oil.

XI. To reftore gold to its weight, after it has lost it in regal water.

Put a bit of tortoife shell to foak, for some time, in regal water. Then put your gold in it, and, by that means, it will recover its lost weight.

XII. To operate the transmutation of silver into gold.

1. Get a new iron-pan to grow red hot upon a trivet, and then put two pounds of lead in it. As soon as this is melted, throw over it, by degrees, some good saltpetre pulverised. This will melt likewise. Keep it thus in sustain fusion till it is at least half dissipated. Should it take fire during that time, it does not signify; for, it hurts nothing, and the more concocted over again the saltpe-

tre is, the stronger is the oil.

After having well pounded it on a marble stone, carry it into the cellar. There, it will fall into deliquium which you will pour into a cucurbit, with double its weight of true French spirit of wine, added by little and little at a time; then distil by a flow fire. Grind on marble, as before, what remains in the cucurbit: and, being turned into deliquium, put it again into the cucurbit with some more spirit of wine. Take off these distilutions and cohobations, repeating the same process over again as before, till the saltpetre remains at the bottom of the cucurbit resolved into a true oil which congeals itself no longer, and this will procure you what is called the Fix-balm.

3. Next to that operation, you will make an aquafortis with equal parts of falt-petre, dried vitriol, and roch alum: and, before you put the receiver to the cucurbit, add feel-filings, antimony, verdigrife, in subtile powder, tutty and cinnabar, of each half an ounce, or one ounce, according to the quantity of aquafortis you want to draw. Cohobate the spirits seven times over, upon the fieces, which you will grind each time on a marble

table.

4. Dissolve one ounce of alver in three of this liquor; and, on that solution, still, drop by drop, one ounce of

your nitre-oil in a bottle made like the hour-glaffes, which after the operation must be at most only half-full, and which you will cover with another inverted, fo that the neck of the under one should get into that of the upper one. Or, else, put it in a matrais with a long neck, which you will feal hermetically; but, if you make use of bottles, take care to lute well the joints. Place this over hot ashes, and plunge it in them to the heighth of fix inches. Give under this a lamp fire, which should not reach the matter by three fingers distance. You will get every day to the amount of a filver pennyweight of filver fixed into gold. And, when the whole shall have been fixed thus, day after day, the aquafortis, which before was green as an emerald, will become as clear as pump-water. Let the composition cool, and divide the water from the oil, which will never be the worle for ule, and must therefore be preserved. At the bottom of the vessel, you will find the silver fixed into gold.

XIII. Fixation of gold into filver.

1. Sublime, on a fand fire, some arsenic, with an equal weight of decrepitate falt. Take the middle and crystaline matter which sublimates, rejecting the subtile four which rifes on the head, and the dregs which remain in the bottom. Sublime over again this crystal, and reiterate so many times as necessary that no flour should longer sublimate.

2. Calcinate some filver with mercury, with which amalgamate it, and this as many times as you may find necessary, that the water in which you wash your filver, after the diffipation of the mercury by means of fire, should run as fair and clean as when you poured

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3. Take one ounce of this calcinated filver, and four of the aforesaid arsenic: sublime the whole so many times as necessary, that nothing should ascend any more. This sublimation may easily be performed in a matrass laid on its fide, which you must turn to as to put always underneath what is fublimed above. By means of fuch an industrious practice you avoid the necessity of breaking your matraffes every time you want to refublime what was already fublimed. At last the matter turns into a stone, which, having pounded, you put on a digesting bath, till it is all reduced into a fixt oil, which you know to be done by the transparency of the

reffel.

4. Take four parts of mercury, and one of that oil. Put first the mercury into the crucible, and, afterwards, this fixt oil. Give a gradual fire, till all the composition be reduced into a lump, which adheres to the crucible. Take it out and test it; you will find it to be the finest filver in the world.

XIV. To extract mercury from lead.

Take pearl ashes one pound; vine ashes four; quicklime one; and pebbles calcinated two. Make a strong live of the whole with distilled vinegar. Dissolve in this two pounds of lead: and, when the live is become white, throw in ten ounces of borax. When this is dissolved, throw the whole into a retort, and distil it with a gradual fire. You will get, into the receiver, ten ounces, at least, of quick filver.

XV. Another mercury from lead.

Take lead filings one pound; ammoniac falt four, ounces; bricks, pounded into a powder, three pounds. Distil this composition, in a retort, on a gradual fire. The receiver must be very large, half full of water, and the fire must be continued for twelve hours, pushing it, by degrees, to the very last.

XVI. Permutation of lead into filver.

Take fine lead; calcine it with common falt, or, elfe, with that fort of falt which is extracted from the dregs, faces, or caput mortuum of Saltpetre and vitriol calcinated both together. Soak the whole warmly with oil of vitriol till you make it come into an unctuous paste. This you will put in a pot, or crucible, well luted, and placed in a pan full of sand, with which you will cover it over intirely. Make under this a digessing fire; that is to say, such a fire as is necessary to warm the sand: keep it so for ten days, then take off your matter and test it. Out of one hundred and sive pounds weight of lead, you will draw sive marcs, or two pounds and has weight, of silver capable to stand the test

XVII. Fixation of faltpetre.

Melt some lead in a crucible, and project on it pulverifed nitre, reiterating the projections in proportion as the matter fuses, till it is entirely melted.

XVIII. Transmutation of iron into copper.

Iron is easily changed into copper by means of the vitriol. To do this you put your iron fratum super fratum in a descensorium, and set it over a strong blast fire, pushed by bellows, till the iron melts and flows into copper. You must not forget when you have made your bede of vitriol, to water them a little over with vinegar faturated of faltpetre, alkaline, and tarter falts and verdigrife.

XIX. Another to the same purpose.

Pound some vitriol in powder, and distil the spirits from it by means of the retort. Replace the spirits on the caput mortuum, then plunge and extinguish in them some red hot iron laminas, or filings: and, by little and little, the iron will turn into copper."

#### XX. Another.

Dissolve vitriol in common water; pass it through filtering paper, then evaporate the water unto a pellicula, and put it in the cellar, for one night, and you will obtain some green crystals. Redden them in the fire, then dissolve them three or four times in distilled vinegar. drying them every time, till these crystals become red. Dissolve them again in the same vinegar and extinguish in it fome red hot iron laminas, filings, or any other iron rubbish; they, and every one, will, by these means, turn into a very fine copper.

XXI. To preserve the brightness of arms.

Rub them with hart's marrow. Or, elfe, dissolve some allum powder with the strongest vinegar you can find, (that of Montpellier which ferves to make their famous verdigrife is the fittest), and rub your arms with it. By these means they keep forever bright and shining.

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XXII. To manage steel so, that it may cut iron as it were lead.

Draw, by an alembic, the water which will come from a certain quantity of earth-worms; join with this wa-

ter an equal quantity of horse-radish's juice. Then temper, four or five times, in this liquor your iron kindled red hot. That fort of steel is made use of for knives, swords, and other instruments, with which you may cut iron with as much ease as if it were lead.

XXIII. To soften steel.

Take a descretionable quantity of garlic, rob them of their coarsest peel, then boil them in oil of nuts till reduced in o an unguentum. Cover well your steel all over with that composition to the thickness of half a crown. When this is done, put your steel, thus covered, in the forge, in the live coals, and it will become soft. To restore it afterwards to the temper, called by artists red cherry colour, you must, after having made it red hot, plunge it in the coldest water.

XXIV. To extract mercury from antimony.

Take antimony and decrepitate falt, of each one pound. Mix them together and put in a retort of two quarts. Set the retort on the bare fire, or on the gradual fand fire. Let the beak of the retort be in water, and at the bottom of that vessel, wherein the water is, you will find the running mercury of antimony.

XXV. A magical mercurial ring.

Take verdigrise half a pound, and an equal quantity of copperas. Pulverise each of them separately, and put these powders into an iron pan which hath never been used before for any thing else. Boil the whole, for about two minutes, in very firong vinegar. Then throw into the pan half a pound of crude mercury, which you will inceffantly stir with a wooden spatula. Begin to boil first by a flow fire, and never cease to stir the whole well for fear of the adhesion of mercury. In proportion as the vinegar finks you may add more, not exceeding, however, the quantity of half a pint, or thereabouts. When this has boiled about a couple of hours, the matter will remain in a lump at the bottom of the pan. Let it cool with the small quantity of vinegar which shall remain after the ebullition, then throw it into a large pan of cold water. Handle this lump well in that water, in order to purge it from all the munditiæ. Throw

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Throw that first water away, and put clean water in, and do the same again and again, keeping handling the matter well in your waters, till the last remains clear as rock water. When your mercury is thus well fixed, put it in a clean piece of linnen to take off the superstoous parts; and what remains well fixed after this second trial, you must extend on a sheet of white paper, on which, having flattened it quickly, and cut as hastily, for sear it should grow too hard, into small bits of the form and size you like, you expose it to the dew of one night, from the evening to the morning, and then you will find it as hard as iron.

XXVI. To melt the aforesaid mercury.

Take Alexandrian tuty, and terra merita, of each half a pound, separately pulverised and mixed afterwards together. Stratify vour bits of the above mercury, making the first and last strata, or beds, with the powders and a little thicker than the others. Cover your crucible with another, and lute them fo well that there should no chink remain, which you will examine well after having dried them in an oven. When perfectly dry, place your crucibles in a gold or black-smith's furnace, and furround them well with live coals every way, by the fides, top, and bottom, which you will make blafting for a quarter of an hour; and push by strength of bellows during half an hour, then let them cool gradually in the fire till the next day: when, taking off your crucible, you will find your matter turned into a gold colour. Throw it into a pan of water, and wash it well till the water remains clear. The whole being granulated, put it in a small crucible with half an ounce of borax, and melt it as you would gold or filver, then throw in it an ingot. With this matter you will make your rings in drawing this metal through the wiring bench, or other-

They stop the colds in the head, shew the disorders one may be affected with, particularly in those well-known monthly diseases of women. At such times the ring turns of a dull red colour. They are also very useful in killing the worms in small children, if you make them boil in a varnished new pipkin, with a glass (or four ounces) of water, reduced to a third, and drunk fasting.

XXVIII, A

XXVIII. A fixation of copper which will be found to yield fix ounces out of eight, on the test.

Take two ounces of fine pewier, which melt in a crucible, adding gradually to it, after it is melted, an equal quantity in weight of flour of fulphur. When all is calcinated, and while field a little warm, add again to it half an ounce of common purified mercury, flirring continually with a fpatula till the mercury disappears entirely. There will come a powder, of which if you project one, on four ounces of red copper in fusion, then fir and cast in ingots, you may obtain the promised advantage.

XXIX. To whiten copper so as to make very fine figures with it.

Take five parts of copper, which you will melt in a crucible, then throw in one part of zinc. As foon as the zinc is in it, take it off from the fire, and flir the matter a little with an iron rod, then cast it in the molds of your figures. They will look like filver casted ones.

XXX. To give the finest colour of gold to copper, in order to make statutes, or other works, with it.

Take one pound of copper, melt it in a crucible, then throw in it one ounce of Alexandrian tuty reduced into a fubtle powder, and mixed with two ounces of beanflour. Take care to keep stirring this matter, and to guard yourself against the sumes. After two hours of sufficient, you will take this composition off, and wash it well, and put it again in the crucible with the same quantity as before of the same powders. When melted, for this second time, you may take it off, and cast it in the molds you propose, and had prepared for it.

## XXXI. To imitate tortoise shell on copper.

Rub copper laminas over with oil of nuts, then dry them over a flow fire supported, by their extremities, upon small iron bars.

XXXII. To perform the same on born.

Make a cold diffolution of auripigment in filtered lime-water: then, lay fome of this liquor with a brush on your comb or other horn work. Reiterate this, if

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you find it has not penetrated enough the first time, and turn it to do the same the other side.

Take faltpetre and camphire equal parts. Dissolve them in adve made with two parts of oakwood ashes and one of quicklime. Pass this solution through a filtering paper, and vaporise it over a flow fire in a glass vessel. There results a borax which, thrown in metals while in susson, sostens them perfectly.

XXXIV. To wash brass figures over, with silver.

Take one ounce of aquafortis. Dissolve in it over a moderate fire one drachmof good silver cut small, or granulated. This silver being wholly dissolved, take the vessel off from the fire, and throw in it as much white tartar as is required to absolve all the liquor. The rest is a passe with which you may rub over any work made of copper, and which will give it the white colour of silver.

XXXV. To operate the transmutation of iron into steel. Take beech and willow, burn them together. When in coals, extinguish them, before they are consumed, with water, or rather, with chamber-lye. Pound them well, and fift them through a very fine fieve. Then burn likewise ox horns, and prepare them the same way. Sift well also soot, vine ashes, burnt shoes ashes, and pomegranates' shells' powder, putting aside and separately each drug by itself, and mix them afterwards, when used, in the following proportions. - Coals twelve pounds; horns ten; shoes, vine, soot, and pomegranate, of each equal quantity, three pounds, all well mixed together. To make one hundred pounds weight of steel, there is required one hundred and twenty pounds weight of good, foft Spanish iron, not streaky: to which, if you give the aforementioned dose of the said powders prepared as directed, and put to the fire, for the space of fortyeight hours, you will get the best steel which can be had.

XXXVI. Another receipt for the same.

1. Take one bushed of beech coals pulverised and sifted; alder's coals, thus prepared, one peck; vine ashes and soot, both well pulverised and sifted, equal

parts,

parts, half a peck. Mix well these powders, and stratify your iron bars with them in a crucible well luted; then give a good sire for twenty-four hours.

N. B. Observe that you must take care to use news

and not floted wood, to make the faid ashes.

 If you want to have your fleel white, you must add to all the above powders one peck of juniper-wood ashes.

3. If you want it purple, you must make a lexiviation of vine and shoes ashes, foot and garlick, well pounded, equal parts; and a sufficient quantity of water to make the said bullitorium, in which you will steep, cold, your iron bars before you cement them.

4. You must proportionate the quantity of wind-holes in each kiln to the quantity of bars, and of cruci-

bles, for which you intend to fit it.

5. The fratum super fratum ought to be made one, or, one and an half, inch thick of powder to each bed .-The bars ought to be ranged cross-way one over another; and large crucibles are to be preferred to small ones. -You must take care to have them so well luted, as not to allow the least air to find its way in; for there would refult an intire miscarriage of the whole operation; and, besides, your powder would hence lose all its virtue.-Should you likewise let it get air before you make use of it, it would become quite dead and flat. Therefore you are cautioned to keep it always very closely confined, in well-stopped vessels, of whatever kind they may be.—That which comes off from the crucible, after the operation, is not worse for having been thus in use. It wants, therefore, nothing but an additional supply of fresh powder, joined to it, to make up what is lost, or diminished, by the frequent handlings of it, in taking it out, and putting it in, the crucibles again.

6. The kiln ought to be wide by the inferior part, and go narrowly towards the top, which must end in a conical form: By such means, the heat contracted becomes strong, and acts with infinitely more power.—Neither must you neglect to have it so constructed as to be provided with an ash-hole, or a place underneath wherein the ashes may fall; and several openings to let

the wind escape.

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\* + \* An estimate of the costs, and profits, of such an operation in France.

The thousand weight of iron, in bars slat on one side, costs about sixty livres. Two thousands being requisite, at a time, for one single operation, make one bundred and twenty livres, or, sive pounds sterling.

Ten crucibles this will employ; ten livres. Powders for the two thousands; forty livres.

For two men to fit up, and watch, in order to keep up the fire; four hores.

To prepare the feel, after it is out of the crucibles, and render it marketable; twenty livres,

All the expence amounts to two hundred livres, or eight pounds eight, or ten, shillings sterling, or thereabout. Iron, thus turned into steel, whether white or purple, comes, on computation, to two sols, or one penny, a pound; which makes one hundred livres per thousand weight.—Thus, the two thousands weight, which may be made in the same kiln, every week, come to two hundred livres.

If you fell your feel, on the footing of fix fols per pound, there is, clear profit, four bundred livers a week; which, in a year, would make 20,800 livers.—Now, you may, on this calculation, have as many kilns as you pleafe; and each kiln may make a kilnful every week.

XXXVII. To take immediately rust from iron. You must rub your iron with a piece of rag steeped into oil of tartar per deliquium.

# XXXVIII. To obtain good filver from pewter.

1. Take quick lime made from rock or transparent pebbles, and one pound of common salt. With those two ingredients make a strong lye which you will evaporate on the fire to the reduction of one third part of what it made before. Next, melt in a crucible two pounds of pewter, to which, after susting, you will add one pound of baemalitas. The whole being well incorporated and melted, throw it in part of your aforesaid lye; and, when quite cold, melt it again, and throw it again into new lye, repeating the same process for seven different times, and using fresh lye, prepared as above, every time.

2 The next operation is to take one ounce of ammoniac falt, an equal quantity of borax, eight feruples of auripigment, reduce them into a very fine and subtile powder, and being mixed together, incorporate them into a passe with the whites of two new-laid eggs, and put all together with the pewter, ready prepared as before mentioned, in a crucible. When all is in sustince the fire for one hour; then, take off the crucible. There you will find your filver, fit to stand the test of all the assayers.

XXXIX. To soften iron.

Take half an ounce of tartar; two of common falt; and two and a half of verdigrife. Mix all together, and expose it in a porringer to the dew of nine nights running. This will turn into water, in which, when redhot, you may kill your iron.

XL. To melt iron so that it will spread under the hammer.

Take equal quantities of lime, tartar, and alkali salt.

Pour over it a sufficient quantity of cow-piss, to make a thick pap with it, which you will set a-drying in the sun, or before the sire. Make an iron red-hot in the fire; then, plunge it in that matter. You may afterwards melt it as you would silver; and, then, work it the same way, when cold.

XLI. To give iron a temper to cut porphyry.

Make your iron red-hot, and plunge it in distilled water from nettles, acanthus, and pilosella, (or mouse-ears);
or in the very juice pounded out from these plants.

XLII. To soften all sorts of metals.

Take sublimate mercury, euphorbium, borax, and ammoniac salt, of each equal parts pulverised. Project some of that powder over any metal when in a state of susson, and you will obtain the desired effect of making it soft.

XLIII. To foften a forbistic metal.

Take black soap and common salt, of each two ounces; human excrements dried and pulverised, four ounces; rock alum an equal quantity, and nitre salt, half an ounce. Incorporate all together in a pan, over the

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fire, with bullock's gall, keeping stirring with a spatula, till you seel no longer with it any saline particle. Then take off the pan from the fire, and let the composition cool. Of this you may throw some into the crucible in which your metal is in suspense.

XLIV. A good temper for arms.

Take tythimalus, or spurge; roots of wild horse-radish, bryonia, and pursain, of each equal quantities. Pound all together, so that you may get at least one pound of juice. Add to this one pound of red-haired child's water; saltpetre, alkaline, gem and ammoniac salts, of each one drachm. When you have mixed all well together in a glass vessel perfectly closed and stopped, bury it in the cellar, and let it there lie for twenty days. Then bring it up again, and put it in a retort, to which you will adapt and late well its receiver, and begin to distil by a gradual fire. Now, when you want to get arms of a good temper, you have only to plunge them in this distilled liquor, after having previously made them red hot in the fire.

XLV. Another very hard temper.

Take nettles' juice, bullock's gall, child's water, or firong vinegar, and a little falt. Incorporate well all this together, and plunge any red hot iron in it.

XLVI. To melt iron and make it foft.

Take two pounds of auripigment, and four of oil of tartar. Make the auripigment foak up all the oil of tartar, and dry it up afterwards over a foft fire. Then put small bits of iron in a crucible; and, when very red, throw by little at a time about half a pound of that auripigment prepared as before; and you will find your iron soft and white.

XLVII. To whiten iron like filver.

Meltiron filings in a crucible, along with realgar, or

red arfenic. Then take one onuce of that matter and one of copper; melt all together, and put it in a coppel. It will give you one ounce of good filver.

XLVIII. To

XLVIII. To render iron brittle, so as to pound like glass. Take the diffilled water from rock alum, plunge in it feven disferent times your pieces of iron, or steel, beaten

very thin, and made red hot every time. This operation will render them fo brittle, that you may pound them in a mortar, afterwards, as you could glass.

XLIX. Ingredients which serve to the melting of iron. Iron is to be melted with any of the following ingredients; viz. pewter, lead, marcasite, magnesia, auripigment, antimony, crown-glass, sulphur, ammoniac salt, citrine-mirobolans, green, or fresh, pomegranate rinds, &c. &c.

L. To melt or calcinate the blade of a favord without burting the scabbard.

You must drop into the scabbard of the sword some arfenic in powder, and squeeze over it some part of the juice of a lemon. Then replace the sword into its scabbard. In a quarter of an hour afterwards, or little more, you will fee what a furprifing effect this will have.

II. A spirit which will dissolve all forts of stones, without excepting the most hard.

Take rye-flour and make small balls with it, which you will dry; then put them into a retort well luted, and place it over a gradual fire to draw the spirits by distillation. If in the spiritous liquor, which will come from this operation, you put any stone whatever, it will dissolve.

LII. To refine pewter.

Take fine pewter, and put it into a crucible. When melted, project over it, at different times, some nitre, till it comes to a perfect calcination. Repeat this three different times, pounding the matter into powder, which you will mix with charcoal's dust. Then, being thus melted for the third time, it will refume its former fubthance of pewter, with this difference, that it will be refined to an infinitely superior degree.

LIII. To fix mercury.

Take verdigrise in powder, which you will put in a crucible. Make a hole in that powder, and place in ita knot of mercury previously impregnated with white of eggs' water. Cover this knot over with borax, and add again over this some more verdignise and pounded glass, one or two singers deep. Lute well the lid of the crucible, and give a pretty smart sire, though gradually, and not at once, for the space of two hours.

LIV. To extract mercury from lead.

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Take lead and beat it into sheets, or laminas, very fine. Put these in a glass vessel with common salts, a double quantity of the lead. Cover this well, and bury it under ground for nine days at least. After that time, if you open the vessel again, you will find your lead turned all into running mercury, or quicksilver, at the bottom of it.

I.V. The composition of cast mirrors and cylinders.

Take one pound and a half of red copper; eight ounces of refined pewter; one and a half of stellated marsegulus, otherwise regulus of antimony; half an ounce of bismuth; one and an half of nitre, and a discretionable quantity (that is to say as much as you please) of silver.

LVI. The true composition of metallic mirrors, or loooking-

glasses, used among the ancients.

1. Take one pound of decapitated, or well purified, copper, which you will melt; then throw over it three pounds of refined pewter. As soon as they shall be both in good sussion, add six ounces of calcined red tartar, two of arsenic, half an ounce of saltpetre, and two drachms of alum. Leave all this in sussion together for the space of three, or four, hours, that all the salts may well evaporate, then you will cast this composition in the start and mould prepared for it.

2. To give these mirrors the requisite polish, you proceed as sollows. Begin sirst by taking the coarsest part away with the wheel over a grinding-stone, after the same method as the pewterers and braziers do, and then you smoothen them with water till they are sufficiently polished by attrition. The second step is to take the mirror from that wheel, and put it on the wooden one covered with leather, after having rubbed it well with emery in order to give it a fine polish, and

eat off the scratches which may have happened to it on the first wheel. Then you must take it again from this wheel and put it on another of the same kind, covered likewise with leather, after having previously rubbed your mirror with prepared blood-stone, and washing it afterwards with magister of pewter. Take notice that you are to make your mirrors observe, on both these less leathered wheels, the same oblique direction in turning them, and continue so long till the mirror has acquired a sufficient sineness and brightness.

Convex and ardent mirrors are rubbed and polished

in the same manner.

LVII. To make convex and ardent mirrors.

1. Take one pound of copper in laminas. Cut them in small pieces to get them into a crucible, and impregnate them with oil of tartar. Then take a quarter of a pound of white arfenic in powder, with which you will dratify your laminas, putting bed upon bed till the crucible is full. Cover this crucible with a lid of the same earth; lute it well and set it to dry. When done, plunge it to the lid in the fand, and give it a gradual hie, till it is strong enough to evaporate the oil. During that time the oil prepares the copper, in detaining the arienic and making it pass into it with the same facility as oil passes through leather .- You may, if you chuse, place your crucible in the furnace on the bare fire; but then you must manage the fire gradually till the oil is quite evaporated. This being done, let the crucible cool, and break it; you will find your copper variegated with feveral colours, and it would be still more so, if, instead of arsenic, you had used auripigment.

2. Take of this copper one part, and two of brass. Melt first the brass on a blasting fire; then throw in your prepared copper. When they shall have been in good sussion a pretty good while, throw this metal into a pan full of lukewarm water, over which you shall have placed a birch-broom, to force your metal to granulate in falling through its twigs into the water. By such precaution your metal will be so hard as to resist the file; will not be brittle; and acquire the same qualities as

steel, instead of which you may even employ it, on

many occasions, for various forts of works.

3. Now take of this hardened metal three parts; of the best Cornwall pewter, and perfectly free from lead, one part. Melt first the metal, as we said before, on a blassing fire, then put your pewter to it; and, when both are well melted together, you will throw this composition in the convex mould to make the concave, and in the concave to make the convex mirrors. This composition is the best which can be employed for the manufacturing of these forts of mirrors. It is white, hard, never brittle, and susceptible of receiving the highest and most sinished polish.

LVIII. To give tools fuch a temper, as will enable them

to saw marble.

Make the tool red hot in the fire; and, when red cherry-colour, take it off from the fire, rub it with a piece of candle, and steep it immediately in good strong vinegar, in which you shall have diluted some soot.

LIX. To soften iron, and harden it afterwards more than it was before.

1. Make a little chink lengthways in an iron bar, in which you will pour melted lead. Then make it evaporate by a strong sire, as that for copelling. Renew this operation four or sive times, and the bar will becomevery soft. You harden it afterwards in steeping it, when red hot, in mere forge water; and it will be of so good a temper as to be sit for lancets, razors, and knives, with which you will be able to cut other iron without its splitting or denting.

2. It has been found by experience, that an armour can never be good proof again, fire-arms, if it has not first been softened with oils, gums, wax, and other incerative things, and afterwards hardened by steeping them

feveral times over in binding waters.

LX. To operate the transmutation of iron into damasksteel.

You must first purge it of its usual brittleness; and, after having reduced it into filings, make it red hot in a crucible: steep it several times in oil of olives, in which you shall have before thrown several times melted lead.

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Take care to cover the vessel in which the oil is contained, every time you throw your steel into it, for fear the oil should catch fire.

LXI. To guard iron against rusting.

Warm your iron till you can no more touch it without burning yourself. Then rub it with new and clean white wax. Put it again to the fire, till it has soaked in the way. When done, rub it over with a piece of terge, and this iron will never rust.

LXII. To cut pebbles with eafe.

Boil it a good while in some mutton-suet; and, then, you will cut it very easily.

LXIII. To whiten copper.

Take auripigment and eggs' shells calcined, equal quantities. Put all together in a pot covered with another having a little hole on the top. Give it first the wheel-fire for three hours. Then increase the fire, and, what shall have been sublimed remix with the faces again. Sublime anew, and mix again the faces and the flours together. Then, for the third time, there will be no more sublimation; only the slours will swim over the faces. Now take arienic of one fingle sublimation, and crude tartar, of each equal parts well mixed together, and stratify with this mixed powder some very thin copper laminas. Then push the fire with violence to the degree of fusion; and granulate it in water, which you are to put in great agitation for a good while before you throw the matter into it, in order to prevent thereby your matter from sparkling when you throw it. In reiterating this operation on the same metal, you will render your copper as beautiful as filver.

LXIV. A projection en copper.

r. Take fine pewter two ounces, which you will melt in a crucible. When melted, throw in it by little at a time the fame weight of flour of brimftone. Stir every time with a rod, till you fee both your pewter and fulphur well calcined. Then take the crucible out of the fire, and throw in half an ounce of crude mercury. Let it cool and pulverife this.

der.

2. Now melt four ounces of molten copper. When in good fusion project on it, by degrees, one ounce of the above powder, stirring carefully, while you do it, with a stick. Leave it thus in susson for a little while, and then you may use it for making all forts of plates. It is so beautiful, that, if you test it on the coppel with lead, it will stand it perfectly.

LXV. A receipt for the preparation of emery.

1. Calcine eastern, or Spanish emery, three, or four, times in the fire; then let it cool. Pound it and make frata super strata of it, with double the quantity of fulphur-vivum in powder. Leave this crucible in the furnace with a flrong fire during three or four hours. Repeat this process four different times over, then reduce your emery into an impalpable powder. Put it next into a matrals pour over it regal water, that it fwim over by three fingers deep. Put this in digeflion for eight hours. Pour off by inclination your regal water impregnated with the dye. Put new water on your matter, and fet it on digesting again for eight other hours, as the former. Then take your thus tinged watero, which you will mix and put in a retort. most part of it, till you see that what remains in the retort is yellow. This is the true oil of emery, in which you will put the bigness of a filbert of camphire.

2. Exfulphurate in a crucible, on a good fire, and during two hours, what quantity you pleafe of arsenic: Then take two nunces of the aforesaid oil of emery, one of your exfulphurated arfenic, an equal quantity of falt of tartar drawn with distilled vinegar, two of sublimate, and two of filver; which you will have diffolved in an aquafortis made with nitre and vitriol. Put all together in a matrafs fo large that the composition should occupy no more than a third part of it, and of which you shall have cut the neck off, to obtain a more easy evaporation of the compounds from it. Put this matrass in the fand as high as the matter, and give it a moderate fire for two hours, then a strong one for fix, after which you will let the fire go out of itself. When done, you will find your matter in a stone in the matrass. Take it out and pound it into powder. One ounce of this powder, projected upon another ounce of salt in susson, if your keep it a little while in that state, and throw it afterwards into oil of olives, will increase your gold by a third of its primary quantity and rather more: And you may thus increase it again and again by repeating the same operation.

LXVI. A factitious amiant; or the way to make an in-

Take rotten oak-wood which you will calcine into ashes, and mix with an equal quantity of pearl-ashes. Boil all together in ten times its weight of water. When this has boiled one hour, add as much water to it as there may have been evaporated, and boil now in it a large slick of alumen plumejum, during one hour. Take off the vessel from the rice, and carry it into the cellar. In a month's time you will sind your alum as fost as slax. Spin it, and get it weaved into a cloth. The sire will never have any power over it. On the contrary, the best way to west it is to throw it on red hot coals; and, after having there let it burn throughout, take it off; and you will find it persectly clean.

LXVII. To render tartar fusible and penetrating.

1. Stratify cakes of white tartar with vine branches. When done set them on fire by the top, and when arrived

at the bottom your tartar will be calcined.

2. Dissolve this calcined tartar in aquavitæ, then pass it through the filtring paper, and next evaporate the brandy. What shall remain is the salt of tartar, which you must find to be as white as snow. Pour over it the best and the truest French spirit of wine, so that it should exceed over the salt the thickness of an inch. Set it on sire. As soon as your spirit of wine shall be all consumed, your salt of tartar will be suspensed and peretrating.

3. Now should you make any iron red hot, and project on it a little of that falt, it will penetrate it through and through, and leave after it a vestige as white as sill

ver in the place where it touched.

LXVIII. To extract mercury from any metal.

1. Diffolve lead, antimony, or any other metal, in good common aquafortis. When that water shall have diffolved

dissolved as much of it as it can, pour it out by inclination, and on what shall not yet be quite dissolved, but corroded only in 2 white powder, pour some hot water. Shake then the matrafs in which the metal is, and you will find that the water will finish to dissolve what the aquafortis could not. Next to this pass it through a filtring paper; and, what you will find not able to pass, dissolve it now with some fresh aquafortis, or only water, if it so appear to you that this may do. Continue thus the same dissoluting process, till you have obtained a perfect dissolution of all the powder, and you have made it pass through the filtring paper. Now take all your several dissolutions, both those made with hot water and those made with aquafortis, and mix them all together. Make a precipitation of that dissolution to the bottom of the vessel in form of white curds, by means of a water impregnated with falt. Edulcorate this twice, with cold common water, and once with some a little warm, then dry it.

2. Take one ounce of that dissolution, thus edulcorated and exficcated into powder; half an ounce of ammoniac falt sublimed over common falt. Grind all together on a marble slone with a mullar for a long while, that it may be well incorporated, as the painters do their colours; and, to succeed better in that incorporation, impregnate it with distilled vinegar. Now put all this into a pan, and pour cold water over it, so that it should fwim over the matter, stir it well twice a day with a stick, for three whole weeks. Then take quick lime, which you will flack with the fwimming liquor which covers. your matter; and, with equal quantities of the powder which lies under it, and the flacked lime, make small bullets, which you will put into a retort well luted, and push it on with a great fire. You will soon see the mercury going into the receiver, which you must have had the precaution of filling with water, and under which,

at the bottom, you will find it.

3. The same process carefully attended to, may procure you mercury from all the metals and minerals without exception.

LXIX. To dye in gold filver medals, or laminas, through and through.

1. This curious operation is performed by means of the admirable falt of Glauber, which is made with nitre and vitriol oil, in the following manner.— Take what quantity you please of nitre falt, pour over it a sufficient quantity of oil of vitriol, to have it swim over. When the ebullitions arising from that mixture shall be ended, distil to dryness; there remains a white salt known under the name of salt of Glauber.

2. Diffolve in what quantity of warm water you think proper, or be in need of, a fufficient quantity of that falt as may faturate it, which you know when you feethe water can diffolve no more of it. In this diffolution put a drachm of calx, or magister of gold. Then put in digestion in it filver laminas cut small and thin, and let them so for twenty-four hours over a very gentle are. At the end of that term you will find them thoroughly dyed gold colour, inside and outside.

LXX. To refine pervier.

Take fine pewter, melt it in a crucible. When done, project over it at feveral times some nitre till you see it calcined. Then pound it into powder, and mix it with an equal quantity of charcoal pulverised very fine. If, in this condition, you melt it again, it will resume its form of pewter, only refined in a much superior degree.

LXXI. To make a perpetual motion.

Take aquafortis, in which you will throw some seelfilings well dried. Leave this mixture to lay for fix or cight hours. Then pour out the aquafortis in another bottle, in which you will throw a small loadstone of good quality, and stop it well that no air get in. You will observe a perpetual motion.

## LXXII. A secret fire.

Have a barrel open by one end, and pierced with a dozen of holes on the other. Put in it three or four builtels of oat straw cut very fine, as that which is given to horses. Get next half a bushel of barley, which shall have soaked for three days in lime water, and drained in

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a sheercloth of all the water which can run out of it, place this wet barley in a lump over the oats' straw, then cover it with other similar cut straw, and let it rest till the time that, when you thrust your hand in it, you feel it warm. This heat you may keep up by throwing, with a gardner's watering-pot, about half a pint of water every other day.

LXXIII. An oil, one ounce of which will last longer than one pound of any other.

Take fresh butter, quick time, crude tartar, and common salt, of each equal parts, which you pound and mix well all together. Saturate it with good brandy, and distil it in a retort over a graduated fire after having adapted the receiver, and luted well the joints.

LXXIV. To make a coppel with ashes.

Take equal parts of the ashes resulting from vine-branches, mutton-bones, and harts' horns burnt and calcined. Moisten them with a little common water, then press them very hard in a mould called Coppel. Then take ashes from the jaws and teeth of a jack, which you put over the other ashes to the thickness of a crown piece, pounding well these also over the others as hard as you can. These last ashes serve to set off clean the grain of the metals you are testing on them. The harts-horn ashes serve to bind, or unite, those of vine-branches and mutton-bones together, and to draw down at the same time the lead. You must use eight times as much lead as the composition, you want to test by the coppel, weighs.

LXXV. To folder iron, or any other metal, without fire.

1. Take one ounce of ammoniac, and one of common, falts; an equal quantity of calcined tartar, and as much of bell-metal, with three ounces of antimony. Pound well all together and fift it. Put this into a piece of linen, and inclose it well all round with fullers' earth, about one inch thick. Let it dry, then put it between two crucibles over a flow fire to get heat by degrees. Push on the fire till the lump contained in the crucibles become quite red hot, and melt all together. Then let the vessels, and the whole, gool gradually and pound it into powder.

2. When you want to solder any thing, put the two pieces you want to join on a table, approaching their extremities as near as you can one to another. Make a crust of fullers' earth so, that holding to each piece, and passing under the joint, it should be open over it on the top. Then throw some of your powder between and over the joint. Have again some borax, which put into hot wine till this is consumed, and with a feather rub your powder at the place of the joint; you will see it immediately boiling. As soon as the boiling stops, the consolidation is made. If there be any roughness you must smoothen it by rubbing with a grinding-stone, for the sile will have no power over it.

LXXVI. To folder with fire.

Make a passe with pulverised chalk and gum water, which you will put round the two broken pieces placed on a table, and prepared as before mentioned in the preceding receipt. The only difference is, that you are to rub over the two united extremities with melted soap; and, after having thrown some of the above powder at the place of the joint, you are to hold a kindled piece of charcoal over it. This will immediately set the matter in suspense in suspense to some suspense to some suspense to some suspense the passe, and you will find it consolidated.

LXXVII. To make Borax.

Take two ounces of rock-alum; dilute it and mix it with two ounces of alkaline falt which is used in making of glass. Put all into a pewter pot, and set it a-doing, for the space of half an hour, over a gentle sire; then take it out of the water. Take next two ounces of gem salt in powder, as much of alkaline salt, two pounds of virgin honey, and one of cow-milk. Mix well all together, and set it in the sun for three days. Then the between is done.

LXXVIII. To render iron as white, and beautiful, as filver.

Take ammoniac falt in powder, and mix it with an equal quantity of quick lime. Put then all together into cold water, and mix well. When done, any iron piece, which you shall have made red hot, will, if you seep it in that prepared water, become as white as silver.

LXXIX. To

LXXIX. To calcine pewter, and render it as white, and as hard, as filver.

Melt well your pewter in a crucible, so that it may be very fine and clear. Pour it afterwards into a very strong vinegar then into mercurial water. Repeat that operation as many times as you please, you will each time give it an a iditional degree of hardness and whiteness, drawing near to silver; so much that it will, at last, be very difficult to distinguish it from silver itself.

LXXX. Another to the same purpose.

Make again a good lye with vine-branch ashes and vinegar. Throw in it your pewter when in sussion. Repeat this, seven different times.—Have next some new goat's milk in which you shall have added some white artenic in powder. Melt your pewter again; then throw it in this preparation. Repeat twelve times the same; and the pewter will become as hard and as white as filver.

LXXXI. To whiten brake.

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10.73 dela 1. Take rosin and saltpetre, equal quantities. Pound all in a mortar, and reduce it into an impalpable powder. Put this into an earthen pan made red hot, and thus burn the matter. As soon as done, you must wash, and dry it; then grind it again well into an impalpable powder as before, with the addition of an equal quantity of auripigment. Then put all this into a crucible, cover it with another well luted and having a little hole in the top, which you will stop by laying only a medal on it. When calcined take what you will find clear in the bottom, not what will have sublimed on the top. Make a very sine powder of this matter; and, with one single ounce of that powder, you will be able to whiten two pounds of brass, in proceeding about it as sollows.

2. Melt first your brass as usual; and, when in good fusion cast it into very good vinegar; an operation which you must repeat three times. Then, when you melt it for the fourth time, you are to project on it, as we said before, one ounce only (if you have two pounds of b. ass) of the said powder, which will render your brass as white as silver.—N. B. To melt the brass with more facility there are some who throw in the crucible a certain discretionable quantity of mice-dung; and I recome end

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to do the same. It will be found of no small service, in hastening the fusion of that metal.

#### LXXXII. An other method.

Brass, copper, iron or steel may also be easily whitened by means of the butter from Cornwall tin, or pewter,

prepared with sublimate, proceeding as follows.

Take Cornwall pewter, about one pound; add to it half that quantity of sublimate. Set it on a strong fire, and fubline. The first water which sublimes is not good. throw it away. The fecond is good, which you know by its white colour. Now, if you make a piece of copper, brais, steel, or iron, it does not fignify which, red hot, and steep it in that water, it will become as white as sil-

LXXXIII. To extract gold from filver.

1. Melt, whatever quantity you please, of lead, in a crucible, over a fire of clear and bright live-coals. Have at the same time in fusion an equal quantity of fulphur. Then take your first crucible, in which the lead is melted, off from the fire; and, before the lead shall congeal, throw in the same quantity in weight of quick filver. Stir and mix well this with a stick. When this is done, pour now your sulphur, from the other crucible, over the mixture of lead and quickfilver you have just made, & which coagulates, continually stirring carefully the matter with a spatula, for fear the sulphur should blaze and be confumed before it is all poured in. When the whole is come quite cold, grind it on a marble table with a mullar. Then put all again into a crucible over the fire, and leave it in fusion till all the fulphur is burnt out, and the matter be fluid enough to be cast in an ingot. This will look like the regulus of melted antimony. It will have even its brittlenefs.

2. Reduce now this composition into powder; and, with an equal quantity in weight of it and of filver laminas, make firata super frata of them, elternately, in a crucible beginning and ending always with the powder. Then, over the last bed, put about half an inch thick of Venetian glass, or crystal, reduced into an imposp ble powder. Observe however that the crucible should not be filled so near the brim as to let the glass boll over.

Make a fire strong enough to melt both the matters and the glass, and set them thus in sussion all together for a good hour at least. Then take off, and let cool, your regulus, in breaking your crucible, make a coppel, or test, in which you will put lead in sussion, till it is as stuid as it can be. Throw in your regulus to purify it by that test in the same manner as silver-smiths do.—When your silver shall be fallen to the bottom very pure, put it in laminas, or granulate it; then put it to dissolve in accuasion. You will see some small particles precipitating from it, in the form of black powder. It is sine gold. Wash these in warm water; then put them in sussion, in a crucible, and you will have very true, and good pieces of gold, sit for any of the chymical physics, and capable to stand any test whatever you may put it to.



## CHAP. III.

SECRETS for the composition of VARNISHES, &c.

I. A gold varnish.

AKE karabe or amber, eight ounces, and two of gum-lac. Melt first the karabe, in a varnished earthen pot, or in the retort of an alembic, over a very strong sire. When this is melted, throw in the gumlac, and let this melt in the same manner. Then take some of the sire off, and let it cool; observing with a slick, whether the matter has got all its sluidity. Mix in it six, or eight, ounces of turpentine oil. Keep stirring, with a slick, in order to incorporate well this oil with the rest. Add also a spoonful of lintseed oil, prepared with hepatica-aloes, to the consistence of a balm: which, in order to thin, and reduce it to the thickness of a syrup, you mix with a sufficient quantity of oil of turpentine, tinged with rocou.

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II. How to prepare the lintfeed oil with the hepatica-aloes, for the above purpose.

You prepare the lintfeed oil with hepatica-aloes, by mixing four ounces of this in powder, with one pound

of the faid oil, which you do over the fire, till it has acquired the confidence of a very thick fyrup, and you fee your oil beginning to foum, and to fwell much.—Then pass it through a piece of linen, let it cool, and bottle it, to keep for the above-mentioned use.

111. How to draw the tineture of rocon used in the composition of the above warnish.

In order to draw the tincture of recou, put four ounces of it in oil of turpentine. Set this over a gentle fire, in the retort of an alembic; and, as foon as the oil begins to boil, take it off from the fire: stir well with a stick, and filter it through a paper, to use it as directed before.

IV. A varnish for iceing.

Concoct fome turpentine with water, and white wine of brandy. When concocted, diffolve it in wine and oil of turpentine.

V. An excellent varnish.

Take what quantity you please of verdigrise, grind it with vinegar, put it in a piece of dough, as you would an apple to make a dumpling. Bake it in an oven as bread; then cut open your dumpling, and get the verdigrise out of it. Mix it with wine, and use it. Lay over it a coat of sour ounces of gum arabic; then possible as usual. You will find it will answer your expectation, and be a very fine varnish.

VI. Another, as good.

Put, in a glass bottle, one pound of white mastich. Pour over what quantity of oil may be requisite to cover all the mastich. Place the bottle over the coals, or very hot ashes. The mastich will melt. Take the bottle off from the fire, and shake it well, to see that the whole be perfectly dissolved. This varnish is excessively good to lay over prints, statues, columns, wood, Sc.

VII. A red varnish.

1. Take three ounces of gum-lac; half an ounce of fandarak; as much of mastich in drop, and a pint of true French spirit of wine. Put all in a matrass, which you must take care to lute well with potter's clay, and stop with paper. Have a large iron kettle, two parts of which shall be filled with sand. Place the kettle over the

the coals, and lay the matrass on the fand. Get the composition to boil in that situation for three hours. Strain it through a sheercloth; bottle and stop it well, and keep it for use.

2. To make this varnish red, you put one ounce of vermilion to six of the said varnish. But to dilute the vermilion, you must begin by pouring, first, some oil of aspic over it, and then the fix ounces of varnish, which will take near a quarter of an hour to mix well together.

3. Observe that the wood, on which you want to lay it, has been first well polithed. Rub it again, besides, with a pounce stone and vinegar, that all the pores may be well filled, and should appear no more. Then lay, with a brush, first a coat of simple varnish, without vermilion. Let this dry for three hours. Put on next your second coat, of that which is prepared with the vermilion; then a third and a fourth, according as you want it is a more, or less, deep red, and allowing a distance of three hours time between each coat of varnish, to let them dry.

4 If the last coat of varnish, after being dry, become rough, rob it with shavegrass dipped in oil of olive. After which rub it again with a cloth, till it become bright. Over this, when done, lay another coat of pure varnish, like the first. And this coat, as well as all the others, must be left to dry, at least three hours.

5. As for the black and venturine, you must first lay a coat of varnish on the wood; then, while fresh, sieve the venturine over it, and let all dry for three hours. When dry, you lay one, two, three, or more, coats, of varnish, according to your judgement or liking, and allowing always three hours to dry between each coat. Then polish, and give the final coat after.

## VIII. A black varnish.

1. Take gum-lac, four ounces: fandarak and black rofin, equal quantities, one ounce of each. Pulverife all
feparately, and keep them distinct, to proceed afterwards
in their mixture according to the following directions.
Dissolve the rosin over the fire in a fussicient quantity of
spirit of wine; then add the fandarak to it. As soon as
this is also dissolved, add the powder of gum-lac, and sir

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well till all is well melted together. Strain it, while warm, through a cloth. If any thing remain in the linean afterwards, add some more spirit of wine to it to distilve it as before; and strain it again after like the other. Such is the first preparation of this varnish.

2. The black colour is given to it by means of two drachms only of ivory black to every two ounces of it.

IX. How to make a good ivory-black for the above pur-

Burn any quantity of ivory you please, in the fire, till it is black. Put it into powder on a stone of porphyry. Add some water to it, and make a passe, which you let dry. Then grind it again, as before, with spirit of wine.

X. A varnish for floors.

Put a little petroly or rock-oil with varnish and turpentine, and stir well. Lay it on your floors with an old hair broom, after having mixed in it the colour you want them to be.

XI. Awarnish, from Flanders.

Take athereal oil of turpentine, and Venice turpentine, equal parts. Mix them over a moderate fire, and use this boiling.

XII. A varnish to lay on canvas sashes.

Take fine and clear turpentine, four ounces; oil of nuts, two. Melt all together over a fire; and when it begins to boil, scum it, and use it hot with a brush.

XIII. A varnish of shell-lac, for miniatures and other pic-

1. Take spirit of wine, one pound; picked shell-lac, five ounces; sandarak, two and a half; white karabe and mastich, equal parts, two drachms of each.

2. First boil and skim the shell-lac and sandarak together, to have them the whiter. Then add the mastich and karabe to that, and put all in a matrass over a sand fire, to digest and concost together by a gentle heat.

XIV. Another varnish for pictures.

Take four ounces of gum arabic, the clearest and whitest you can find. Put it to insuse in a pound of water, over ember ashes, for one night. Strain it in the morning through a cloth, after having added to it the bulk

bulk of a nut of Narbonne-honey, and half that quantity of sugar candy. It is not to be used with a brush.

XV. Another fort.

Take aquavitæ, sugar-candy, and whites of eggs, a reasonable quantity of each. Beat all well together to a froth. Underneath is a liquor: that is your varnish. You may lay it, with a soft brush, on any fort of picture.

XVI. The Chinese varnish.

1. Take pulverifed and fifted fealing wax, two ounces. Put it in a matrafs with four ounces of turpentine oil. Give a gentle fire, that all may melt. If the wax be red, you need add nothing but the oil. If black, fome lamp-black is requifite to be added ftill. And, with this first composition, you lay on the first coat.

2. Next to this have aloes and karabe, of each two ounces. Diffolve this in a varnished pipkin, along with twelve ounces of lintseed oil, till all is well incorporated. There will fall a ground to the bottom, over which will swim a very fine and transparent liquor. Of this you are to make your second coat of varnish, laying it over the other after it is dry.

XVII. How to imitate a black jasper, or variegated black marble.

Take fulphur-vivum, quick lime, aquafortis, and the green rind of walnuts, equal quantities, one ounce of each. Dilute all together; then lay it with a brush on what you want to be jaspered, whether a column, a table, or any thing else. This done, put your table or column, &c. thus blackened, in a dunghill, for the space of twelve days, and then take it out again. You will find it well veined and variegated. To give it a fine gloss afterwards, you rub it with a varnish composed as prescribed hereafter.

See Art. xix.

XVIII. Another way.

Make a large ball, with the drugs prescribed in the a-bove receipt, to compose your black. Lay it for a week in a dunghill. When, by that means, it is well variegated, rub your intended piece of furniture with it. This being thus variegated, you lay on it the following varnish, to give it a fine lustre.

XIV. An excellent warnish to give a fine gloss to the abovementioned jasper, or wariegated black marble.

Take oil of Ipikenard, three ounces; fandarak, well picked and clean, two. Have a new earthen pot well glazed. Set it before the fire, a-warming, without any thing in it. When hot, throw in it one half of the fandarak, and one half of the oil. Sur well, left it should burn, or stick to the pot. When it is nearly melted, throw in the remainder of the oil and fandarak. When all is well distolved an 1 mixed, add a piece of camphire, to take away the ban smell of this composition, and let it dissolve; then bottle and stop it for use. Warm it every time before you lay it on, for it requires to be used hot.

XX. A varnish which dries in two hours time.

Melt four ounces of yellow amber, in a new earthen pan, over kindled coals. Take care, in that operation, that the fire should but just reach, and touch, the hottom of the pan, and none should rise along the sides. Never cease to stir, from the moment it is melted, with a deal stick, and add. directly, one ounce of seasing w. x. As soon as this is also melted, add again one spoonful, or half an ounce, of lintseed oil, previously thickened with a little gold litherage; then take it off from the fire, and cease not to stir as before. When the matter begins to be a little cold, then is the time of adding what quantity of turpentine oil you may find necessary to make a true varnish of it.

XXI. A varnish for copperplate prints.

Prepare water with some isinglas. Lay, with a very fost brush, a coat of this on the print. Next to this, lay another of the following varnish.—True French spirit of wine, half-a-pound; gum-elemi, two drachms; and sandarak, three.

XXII. An admirable varnish.

Take white massich and lintseed oils, what quantity you please; a little turpentine, pounded glass, burnt verdigrise, and pounded amber. Boil, and melt, all together in a new earthen pot. When done, you will find it to be an admirable fort of varnish.

XXIII. A varnish fit to lay on all forts of colours.

Take one ounce of white amber; half an ounce of spirit

spirit of turpentine; four ounces of rectified spirit of wine (the true French sort); one drachm of mastich, and as much of juniper gum. Put all together to insuse for eight days. Evaporate two parts of it over a gentle fire. What remains is a varnish sit for laying on all sorts of colours, and which will hurt, spoil, or damage none.

XXIV. A warnish known under the appellation of Beaumeblanc, or, white-balm.

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Take spirit of wine, four ounces; gum-lac, half an ounce: sandarak, two drachms; mastich, one. Pulverise the ingredients, and put them, with the spirit of wine, in a square bottle large enough to be but half sull after the whole is in it. Dissolve this over a slow fire, and take care the bottle should be well stopped first with a cork, and besides with wax and leather.

XXV. A warnish to be used on plaister, and any other sort of materials.

To the varnish of copal and spirit of wine, only add some calcined talk.

XXVI. An excellent warnish, in which may be put, and diluted, whatewer colour you like.—It suits, equally well, goldsmiths and limners.

Take aspic and turpentine oils, of each one ounce; clean picked sandarak pulverised, four drachms; gum copal, two. The whole being well pulverised, put it along with your oils in a matrass, with the addition of half a pound of spirit of wine; and set it in a balneo mariæ. When the matter is dissolved, strain and keep it for use, in a glass bottle well stopped.

XXVII. A Chinese varnish suitable to all forts of colours.

1. Take one ounce of white amber; one quarter of an ounce of sandarak; as much of gum copal. Pound well all these together, and put them in a matrass perfectly dry. To every ounce of these three drugs, pounded and mixed thus together, put three ounces of spirit of wine. Stop well the matrass with a rag, over which you will put some passe made with flour, and then another rag, well tied over. Boil the varnish thus, over ember ashes, till the whole is dissolved, and this varnish is done. The method of applying it is as follows.

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2. The piece intended for varnishing being previously well polished, you lay on it the proposed colour or colours, diluted in aquavitæ with some isinglass. When these are dry, pass on them two or three coats of this varnish, according to discretion and taste; allowing the proper time between each coat of varnish to dry; and, when dry, you polish it with olive oil and tripoly, then rub the oil off with a rag.

Note. That if you intend this varnish for miniature pictures, you are to make an addition of equal parts of

gum copal and white amber.

XXVIII. Another Chinese warnish, more particularly calculated for miniature painting.

Take one ounce of white karabe, or amber; and one drachm of camphire, which you reduce into a subtile powder, and put in a matrass with five ounces of spirit of wine. Set it in the sun to infuse, during the hottest days in July and August, and stir it two or three times a-day constantly. After a fortnight's infusing thus, put the matrass, for one hour only, over hot ashes; then pass all through a cloth, and keep it in a bottle well corked.

XXIX. How to make a red, with warnish, of a much higher hue than coral itself.

Take Spanish vermilion, grind it on a marble with brandy, and add to it the fixth, or eighth, part of lac.—When done, mix this composition with as much varnish as you may find it requisite to apply.

XXX. To make it gridelin colour.

Dilute with your varnish some blue verditure, lake, and whitening.

XXXI. To make it green.

Substitute for the above ingredients, German green verditure, pewter in grain, and white lead.

XXXII. Another way for the same.

Grind, with water, on a marble stone, the finest orpine you can find, and a little indigo. Let it dry, then pound and mix it with varnish.

XXXIII. To make it yellow.

Take fome Naples yellow, and mix it well with your

varnish; then use it.

XXXIV. To

## XXXIV. To make it blue.

Take ultramarine, lake, and whitening, and proceed as ordered in the other receipts above mentioned, and according to the directions of your judgment, and experience from them.

XXXV. Another fort of warnish.

Take shell-lac, in grains, two ounces; two of sandarak; black rosin, two drachms; and, spirit of wine, one quarter. Dissolve and prepare the whole as above.

XXXVI. A clear and transparent warnish fit for all forts of colours.

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Take oil of nuts, and a little of the finest Venice turpentine. Boil them well together. Add a little brandy to it, and boil it well also. Should then the varnish prove too thick, thin it with an additional quantity of oil. And, to apply it, make use of a very soft hair brush, and lay it carefully over the colours.

XXXVII. To make saspes with cloth, which will be very transparent

Take a fine white cloth; the finer you chuse it, the clearer and more transparent the sashes will be. Fix the cloth very tight on a frame. Then make some starch with flour of rice, and lay a coat of it, as smooth as you can, on your cloth, with a stiff brush of swine's hair. Lay that starch on both sides of the cloth, and let it dry. When it is perfectly dry, pass, on both sides also, of the said cloth, thus prepared, the following varnish, with a soft brush of swine's hair likewise, having care to lay it on as equally and smoothly as possible, and let it dry afterwards.

XXXVIII. The composition of warnish fit for the above sales.

r. Take of the finest and whitest wax you can find, fix pounds; of the finest and clearest Venice turpentine, two; one and a half of the most perfect lintseed oil. Have a new and varnished pipkin, larger, at least by one third, than is requisite to contain all these ingredients. Put, first, in this pot the lintseed and turpentine oils together, and set it over a small charcoal fire. When this begins to be a little warm put in the wax, cut in small

bits, and take care to mix all well with a very clean wooden flick, till the wax, being thoroughly melted, is

also well incorporated with the reft.

2. Now, take the pot off from the fire; and, while this composition is still a little warm, give a coat of it on both fails of the cloth fixed on the frames, and prepared as he fore directed, and let it dry in the shade

Note. You may render your fashes still more transparent, if, on both sides of them, you lay a smooth and equal coat of the following varnish, with a soft brush;

then let it dry.

XXXIX. A fine white varnif.

Take one pound of fine Venice turpentine, and as much of spirit of turpentine. Put this in a glass-matras, larger, at least by a third, than is wanted to contain the matter. Stop this matras with another smaller matras, the neck of which is to enter into that of the former. Have care to lute well both necks together with paste and paper; and, when the luting has acquired a perfect drynes, set the first matras on a fand bath, then set the varnish a-boiling, for near an hour, after which take it off from the fire, and let it cool. When cold, bottle and stop it for use.

Note. Turpentine, well purified from all its greafy parts, is the best, and sittest, to make the varnish for

fashes.

XL. A curious and easy varnish, to engrave with

aquafortis.

Lay, on a copperplate, as smooth and equal a coat as you can, of lintseed oil. Set the plate on a chassing-dish, in which there is a gentle heat of half consumed charcoal, that the oil may congeal and dry itself gently on. When you find it has acquired the consistence of a varnish, then you may draw with a steel point in order to etch your copper, and put on the aquasortis afterwards.

XLI. A varnish to prevent the rays of the sun from passing throug hihe panes of window-glasses.

Pound gum adragant into powder; and put it to diffolve, for twenty-four hours, in whites of eggs well beaten. Lay a coat of this on the panes of your windows, with a foft brush, and let it dry.

XLII. To

XLII. To raise a relief on warnish.

pounds of water. Grind with it bol Armeniac, and whitening on a porphyry stone, till all is well united and incorporated. With this composition, fill up the vacancies between the outlines of your design, and form, as it is proper, the various reliefs, with the suitable proportions, and according to the forts of things you are to imitate or represent. Then smooth the parts, and let it dry.

2. Next have ready prepared, in shells, the different forts of metals which you want to use, diluted with gum-water; and, with a pencil, cover what places you are to cover. When this is also dry, burnish it skilfully with an ivory tooth, and lay a coat of clear varnish over the whole. A moderate heat is required for a moment

to help that varnish to dry.

XLIII. To render filk stuffs transparent, after the Chinese manner; and paint them with transparent colours likewise, in imitation of the India manufactured

filks.

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Take two pounds of oil of turpentine, very clear; add to it two ounces of massich in grain, and the bulk of a filbert of camphire. Let this dissolve by a gentle heat; then strain it through a cloth. Of this oil lay one coat, or two, on both sides of your stuff. Allow, however, a sufficient time, between each coat, for each to dry, and let the second lie two days on, before you touch the stuff again. When that time is over, draw the outlines of your design, and slowers, Sc.; cover this with a preparation of lamp-black and gum-water. Then fill the intervals with the intended and proper colours, suitable to the purpose, and which ought to be all transparent colours, di'uted with a clear varnish. When this is done, and dry, lay on both the right and wrong sides of the stuff another coat of clear varnish.

XLIV. To make a transparent blue bue, for the above

Take nine drachms of ammoniac falt; fix of verdigrife, distilled and exsiccated. Put both these into powder. Dilute these powders with tortoise oil. Put this on a very thick glass, which you stop well, and set over

hot aines for a week. After that time your colour will be fit for use, and make your drawings with the clear varnish, as directed in the preceding article.

XLV. To make a transparent yellow hue, for the same use. Take a new-laid egg of that very day, make a hole in the shell, to draw the white out of it. Replace, by the same hole, with the yolk, two drachms of quick filver. and as much of ammoniac falt; then stop the hole with wax. Set that egg in hot dung, or over a lamp fire, for four or five and twenty days. When that time is over, break the egg, and you will find a very fine tranfparent yellow, fit for the use above mentioned.

XLVI. To make a transparent green.

Take verdigrife, gold litharge, and quickfilver, equal parts. Grind the whole in a mortar, with the urine of a child. Put it next into a bottle, and fet it over a gentle and flow fire, for the space of seven, or eight, days. This composition will give a very fine transparent green, for the above purpole.

Note. We have given, in the Sixth Chapter, several receipts for the composition of sundry transparent colours. We shall therefore take the liberty thither to refer the reader, for more ample fatisfaction, and the

completion of the above mentioned operation.

XLVII. To give the abovementioned painted filks, all the smell, and fragrancy, of the India ones.

It is well known, that the filks, and other things, we receive from India, are all tainted with a certain particular smell, and agreeable fragrancy, which, being their peculiar, distinctive, and most obvious character, if not imitated also, would help not a little in ruining the deception intended by the above labor. To imitate, therefore, even this, you must observe the following direction .- Have a small closet, if it be for works at large; or, only a fine basket with a top to it playing upon hinges, stuffed and lined all over in the inside, if it be for one fingle piece of filk. Put, in either of them, and according to their extent, a proportionable quantity of cloves, whole pepper, mace, nutmeg all spice, camphire etc. etc. Put your works among these ingredients, and keep either the closet, or the basket, perfectly close shut, till you see they have received a full impression from the odour of those ingredients.

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N. B. With the various compositions of varnishes, and preparations of colours, we have just given, there is almost no fort of works, coming from the Indies, but can be performed and imitated.

XLVIII. A most beautiful Chinese varnish.

Take one ounce of the whitest karabe (amber); or, instead of this, the same quantity of the whitest gum copal: sour drachms of sandarac; two, of sine mattich, in drops. Put all this, reduced into a powder, in a sine glass matrass; then, pour over it one ounce of the sinest turpentine oil. Stop the matrass first with a cork, then with a bladder wetted. Set this to insuse, over a slow fire, for twelve hours. After this, uncork, and let cool, the matrass; then pour, gently, in it six ounces of good spirit of wine, and stop it again as well as before. In that situation, set it on ember ashes, or, rather, in a bulneo marie. In the space of another twelve hours, you will find that the spirit of wine shall have dissolved all the gums. Then, while the varnish is still quite warm, strain it through a cloth; bottle and cork it, to keep for use.

XLIX. The true receipt of the English warnish, such as in that country is laid on sticks and artificial made cares.

Smoothen and polish well your flicks ; then, rub them, or your artificial made canes, with a paste made of flour. Then, having diluted, in water, a discretionable quantity of Flemish glue, and red orpine, give one coat of this, very smooth and equal, to your flicks. If, after this is dry, you do not think it sufficient. give them another, and let them dry. Then, give them a third coat, of clear varnish, made with turpentine and spirit of wine. After this is done, put a fooking, in an equal quantity of water and chamber-lye, fome turnfol cut very small. With this colour you touch your sticks, or canes, here and there with a hair brush. Then, holding them perpendicular, on their small ends, between both your hands, you roll them quick and bride, (as when you mill chocolate), in contrary senses. This operation gives them a negligent and natural-like marbling, over which you are to lay another coat of varnish, and set them to dry.

L. A fine warnish for all forts of colours.

1. Take two pounds of double-rectified spirit of wine; feed-lac, four ounces; fandarac, as much; gum copal, one. Set all a-dissolving, on hot ashes, in a matrass, or a vessel with a long neck. When perfectly dissolved, strain it through a jelly-bag, made of new cloth. Mix, with that which shall have strained out of the bag, one spoonful of oil of turpentine; then bottle and stop it well, and set it in the sun. There will happen a separation, and a certain coarser part will shew itself at the bottom, while another more clear will aprear swimming on the top. Divide carefully, by inclination, the clearest from the thickest part.

2. This last you may use with fine lamp-black, well nicked, and free from all forts of hard nobs, to make a black-colour varnish. With it, you rub whatever you want to be varnished, and lay, one, two, or three coats of it, more or lefs, according as you think proper, letting dry between each coat. And, when this is done, you put, of the first separated clear part of your varwish, as much as you find requisite to give your work a

fine luftre.

N. B. It is proper there should be some fire, so near to the work, as it may receive from it some gentle heat, while all this is performing: and when the whole is well executed, you must let dry in the shade what is var-

nished, and guard it against the dust.

3. If, instead of black, you want a red colour, you must, from the very beginning of the operation, join fome tacamahaca-gum with the spirit of wine of double rectification : nentioned; and, in lieu of lampblack, in the fe and part of the operation, you put some cinnabar in powder. Then, when you have done with laying the feveral coats of varnish, in which the cinnabar is, you put in the clear varnish, which is deftined to make the last coats, for lustring, some dragon's blood in tears.

4. You may put, in the fame manner, whitening in your varnish, if you want it white; or verdigrise if you

want it green; and fo on any other colour you want it to be, proceeding, in respect to each of them, as before

directed for the others. N. B. These varnishes, when dry, do all require to be polished. For that purpose, you take a cloth, dip it in tripoly, and rub, with moderation, over the last coat of varnish, till you find it has acquired a sufficient degree of lustre, and equality.

LI. A varnish to lay on, after the isinglass. Take spirit of wine, four pounds; white amber, fourteen ounces ; mastich, one ; sandarac, seven. Put alt in digestion, for twenty-four hours. Then, fet the matrass on the fand, and give the fire for three hours, till all is perfectly dissolved. Add after, four ounces of

turpentine oil.

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LII. A varnish to gild with, without gold.

Take half a pint of spirit of wine, in which you difsolve one drachm of saffron, and half a drachm of dragon's blood, both previously well pulverised together. Add this to a certain quantity of shell-lac varnish, and let it on the fire with two drachms of foccotrine-aloes.

LIII. A warnish water-proof.

1. Take lintseed-oil, the purest you can find; put it in a well-glazed pipkin, over red hot charcoals, in a chaffingdish. With that oil add, while a-warming, about the fourth part of its weight of rosin. Make all dissolve together, and boil gently, lest it should run over the pot. At first, the oil will turn all into a scum; but, continuing to let it boil, that scum will insensibly waste itself, and disappear at last. Keep up the fire till, taking a little of that oil, with a flick, you fee it draw to a thread like as varnish does. Then, take it off from the fire. But if, trying it thus, it prove too thin, add some more rosin to it, and continue to boil it.

2. When it is come as it ought to be, varnish whatever you want with it, and fet it in the fun to dry, or before the fire, for it cannot dry without the assistance

of either of thefe.

N. B. This composition of varnish has this particular property, viz. that, if you lay it on wooden wares, hot E 2

water itself cannot hurt it, nor have the least power on it. You may, therefore, make a very extensive use of it. But you must take care to chuse the finest and the most perfect rosin; and to boil it well, for a long time. Quare. Would not such a varnish be extremely useful, to preserve what is much exposed to the injuries of the weather, in gardens and elfewhere; fuch as falbes, statues, frames, bet-bouses? etc.

LIV. Callot's varnifi, mentioned in Chap. I. p. 2.

1. Take two ounces of the finest lintseed-oil; benjamin, in drops, two drachms; virgin-wax, the bulk of a filbert. Boil all this together, till it is reduced to one third; and, while it is a-boiling, never cease to fir with a little stick. When done, bottle, or pot it in a

large-mouthed veffel.

2. To ase that varnish, warm a little the plate you intend to engrave upon; and, taking a little of the varnish with the tip of your finger, spread it delicately over the plate. Observe to put as little of it as you can, and to lay it on as smooth and equal as possible. When done, smoak the plate, on the varnish side, with a candle. passing and repassing it gently, over the slame of it. till it is black every where. Set it again, now, on the chaffingdish, wherein there are kindled charcoals; and, when the plate has done furning, then the varnish is sufficiently hardened. You may then chalk, draw, and etch, whatever you will on it.

Such is the true receipt of the varnish, which the famous Callot made use of, to engrave his most admired,

and truly admirable, subjects.

LV. A varnish to lay on paper.

Begin by laying on your paper one first coat of very clear and thin fize. This being dry, melt three parts of oil of spike and one of rosin together: and, when come to the confistence of a varnish, you lay one second, and light, coat of this over the first made with fize .-This varnish is very fine, when very smoothly, and equally, laid on.

LVI. How to cast figures in moulds.

Take one pound of Paris-plaister, and an equal quancity of bricks, pounded into an impalpable powder;

join

join to this one ounce of alumen plumeum, and one of ammoniac falt. Dilute all together, gradually, in clear water, without abforbing it, as you are to make a passe of it; and make your moulds with it.

LVII. Another varnish.

Take mastich's and sandarac's, equal parts, of each two ounces. Pound them into a fine powder. Have three ounces of lintseed-oil, and as much of spirit of wine, in which, being mixed, you put your powders. Set this, in a well-stopped matrass, in a balneo mariæ to boil and concoct together for one hour: and this varnish is done.

LVIII. L'Abbe Mulot's varnish.

Take of spike oil, one ounce; pulverised sandarac, half an ounce. Put all in a bottle, and set it in the sun till perfectly dissolved. This composition is particularly fit to varnish gold or silver, in shell, which has been laid on, with a hair pencil.

LIX. A varnish to lay over plaister-works, or figures.

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Take fine white Alicante soap; rasp it fine, and put it in a well glazed pipkin. Dissolve that soap, in the pipkin, with your singer and a little water, added gradually, and little at a time, till it comes thick and milky. Cover this, for fear dust should come to it; and let it rest so for feven or eight days. Take, next, a soft and short hairy brush; dip it in this soapy preparation, and wash the plaister sigure all over with it, then set it a-drying. When dry, rub it gently with a piece of cloth, placing yourself between it and the light, that you may perceive better the places which take the polish; when done, thus, every where, your statue will appear as white, shiny, and beautiful, as alabaster.

LX. A very fine red varnish.

1. Take oil of spike, one pound; and litharge as much. Boil both together, for one quarter of an hour, in order to clarify the oil, or, what is called, ungreafing it. When thus clarified, or ungreafed, take one pound of it, and fix ounces of shell-lack, which you melt together in a matrass, or a varnished pipkin. Then, dilute in it some cinnabar, which had previously been grinded on a stoae, with chamber-lye; and the warnish is done.

z. Of this composition, lay first three or four coats on your work, and allow time sufficient, between each coat, to dry. When the last is given, lay on another of pure and clear varnish without cinnabar, made with one part of spirit of wine, and four of oil of spike, and some shell-lack.

LXI. A warnish to gild certain parts of stamped leathers, silvered in some places with powter-leaves, and otherwise adorned with running stalks of slowers, of various co-

lours, figures, and other forts of embellishments.

1. Take lintseed-oil, three pounds : of that fort of varnish called Arabian sandarac, and rough pitch equal quantities, one pound each; and faffron, half an ounce. Instead of saffron, you had better, if you have that opportunity, make use of the staminas of lilies, which are infinitely preferable.—Put all into a varnished pipkin, and fet it over the fire. Take great care not to have it burn; and, to avoid it, keep continually stirring the matter with a spatula. When you want to know whether it be, or not, sufficiently done, have a hen's feather, just dip it in, and off quickly. If the feather be grizzeled, it is a proof the matter has sufficiently boiled. Therefore, take it off from the fire, and throw in one pound of well-chosen and picked hepatica aloes, in powder., Mix well this with the spatula, and set it again on the fire, to concoct well this addition with the rest. If you fee that your matter boils and swells, you must take it off, and let it rest awhile; during which time, you take some of the coals away. Set it now again upon this more moderate fire, stirring always well, that all may be perfectly incorporated. As foon as this feems to you done, you take it off, let it cool a little, and strain it through a strong coarse cloth, and keep it for the following use.

2. Apply the filver, or pewter leaves, on the leather, with the white of an egg, or gum-water. When these are properly laid on, give one coat of the abovementioned varnish, quite warm, on such places as you want to appear gilt, and set it in the sun. When dry, it

looks like gold.

N. B. The Arabian fandarac, we have prescribed a-

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hove, is known by some, under the denomination of Gum of Juniper.

LXII. To imitate porphyry.

Take English brown red. If too red, add a little umber, to it, or some soot. Pound all into powder. Then have a plank, or marble stone, of a fine polish, which you overlay with oil. Make a colour composed of brown red, and a little flat, or Venetian lake, previously grinded with gum adragant. Then, with a largish brush, take of that colour, and asperse your oiled marble with it, by striking the handle of the brush on your wrist, as the book binders do to stain the covers of their books. When your marble shall have been thus well speckled all over with that red colour, you let it dry. Then, taking your lump of brown red and umber, you dilute it, make a thin passe of it, and lay it on your speckled marble. When this is also dry, it admits of a very sine polish, and looks like porphyry.

LXIII. To imitate serpentine.

1. Take auripigment, which you grind well first with water, and next with a little addition of indigo. Let this dry; and, when dry, reduce it to an impalpable powder; then mix it with a little gumadragant, and

make a paste of it, as in the above receipt.

2. After this is done, take some lighter green, put a little more auripigment with the indigo, till you come to obtain the true hue of the spots which are in the serpentine. Of this colour you take with a brush, and asperse with it a marble piece in the same manner exactly as described in the preceding article; and when this is dry, you lay your first prepared paste on it.—For the

rest, do as above.

N. B. You may thus, with a brush, imitate, or even invent, all forts of marbles, according to your taste and fancy; and, when the first laid colours are dry, lay your paste over them, let them dry likewise, and polish.—For example, have several different colours prepared as above; asperse, or mark with each of them separately, and one after another, on some piece of glass, or well polished marble. Then make a paste and lay it over them, of whatever colour you will. If you will

have

have it white, it is done with whitening, or whitechalk, and a little mixture of yellow ocher.—These forts of works admit of being overlaid with an exsiccative varnish.

### CHAP. IV.

SECRETS relative to MASTICKS, CEMENTS, SEALING-WAX, &c. &c.

I. A fubtile mastich to mend all forts of broken wessels.

AKE any quantity of white of eggs, and beat them well to a froth. Add to this soft curd cheese, and quick-lime, and begin beating a-new all together. This may be used in mending whatever you will, even glasses, and will stand both sire and water.

II. Another.

Take rofin, yellow wax, fulphur, and cement. Sift this last very fine, and melt all together; then use it.

III. A maffich to make rock-works.

Take fix parts of Paris-plaster, and one of foot, well mixed together.

IV. An excellent mastich.

Take coarse turpentine, sour ounces; friccasseed and pulverised bullock's blood, one ounce; black pitch, sour; wax, two; rosin, one; pounded glass, one; ciment, one; and sulphur, half a one. Boil all together, after having well pounded and grinded each of them separately.

V. A maftich for broken wares.

Pound a stone-jer into an impalpable powder, and add to it some white of eggs and quick-lime.

VI. Another maßich.

Take quick-lime, cotton and oil, of each equal parts in weight.

VII. Another.

Take frankincense and mastich, of each half an ounce; bol armeniac and quick-lime, of each, two ounces.

VIII .A

#### VIII. A cement.

Take rosin, one ounce; grinded tile, half an ounce; mastich, four ounces.

IX. A glue to lay upon gold.

Boil an eel's skin; and a little quick-lime together: when boiled gently, for the space of half an hour, strain it, and add some white of eggs beaten: bottle, and keep it for use.—The method to use it afterwards, is to warm it and lay a coat of it on marble, delse, Worcester, Stafford, or any other earthen wares, &c. and, when nearly dry, write, paint, or draw, what you please on it with a pencil, and gold in shell.

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Take half a pound of fresh-cod's tripes; boil it in two quarts of white-wine, reduced to one third. To take off the bad smell, add, while it boils, a little cloves and cinnamon. Then, throw this size in whatever mould you please, to make it in slakes.

XI. An exceeding good fixe, called Orleans fixe.

Take the whitest isinglass you can find; soak it in finely filtered quicklime-water, during twenty-sour hours. When that time is over, take it off, bit by bit, and boil it in common water.

XII. A cement for delfe, and other earthen wares.

Take what quantity you will of wax and roiin. Melt them together, and add, while in fusion, a discretionable quantity of marble pounded into a very fine powder.

XIII. Another, for the same purpose, which resists water.

Take quick-lime, turpentine, and foft curd-cheefe. Mix these well together; and, with the point of a knife, put of this on the edges of the broken pieces of your ware, then join them together.

XIV. A cold cement for cisterns and fountains.

Take litharge and boi in powder, of each two pounds; yellow ocher and rofin: of each, four ounces; mutton fuet, five ounces; massich and turpentine, of each two ounces; oil of nuts, a sufficient quantity to render malleable. Work these all together; and, then it is sit for use.

XV. A

XV. A lute to join broken wessels.

Diffolve gum arabic in chamber-lye over a chaffingdish: stir with a stick, till perfectly dissolved, then add an equal weight of flour, as you had of gum arabic. and concoct the whole for one quarter of an hour, or more, if requisite.

XVI. A strong glue with foft cheefe.

1. Take a cheese from Auvergne. Let it be the fattest and newest you can find, and neither dry, nor moift; wash it in very warm water, so long as it should remain clear; then fet it to rot, in clean water, till it begins to stink. As foon as you find it is so, boil it in water, with quick lime; and, when dissolved into a plue, take it off from the fire, it is done.

2. If you dry fome whites of eggs in the fun, and that, pounding them into powder, you should add some of that powder with the cheese when you dissolve it along with the lime, the glue will be fo much the stron-

ger.

N. B. Observe that no other cheese, besides that which comes from Auvergne, has the quality requifite for this composition.

XVII. To make a strong mastich.

Take one pound of rosin; one quarter of a pound of shoe-makers rosin, two ounces of new wax, two of black pitch, and one of tallow. Boil all gently together on a flow fire: and, when well incorporated together, add some brick-dust, finely sifted, according to discretion.

N. B. The quantity of tallow is to be proportioned to the degree of dryness you require in this composition; fo that you may, on that principle, discretionally increase, or diminish, the prescribed dose of that ingredient.

XVIII. To make corks for bottles.

Take wax, hog's lard, and turpentine, equal quantities, or thereabouts. Melt all together, and flop your bottles with it.

XIX. To imitate rock works.

Take white wax and rofin equal parts; and brimflone, a quarter part of both the other two put together.

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which you are to judge whether or not your passil is done. To know it, let a drop sail from the stick into a pan of water; then, working it between your singers, you see whether or not it stick to them. If it stick, the passil is not done, and you must let it remain longer on the sire; then repeat the trial again, till it does not stick to your singers, as a proof of its being arrived at its degree of persection.—Throw it in a glazed pipkin silled with cold water; and when it becomes a little cold, make it into a ball with your hands, which you shall have previously greased with lintseed oil. Then you may keep it as long as you please for use. Stay, however, three or four days before using it the sirst time.

XXXVI. The way of mixing the lapis with the pastil, to make ultramarine.

1. Dilute, as thick as you can, a quantity of the before-mentioned impalpable powder of lapis lazuli, with a liquor made of two parts of aquavitæ, and one of lintfeed oil.

2. Melt in another glazed pan, without the assistance of water, and over a gentle fire, the passil described in the preceding receipt.—Observe that your passil be perfectly purished from any particles of water it might have carried away with it, when you threw it in water in order to form it into a ball.

3. When the passil is melted, throw into it the thick passe you had previously made of lapis lazuli with brandy and lintseed-oil. Stir and mix this so well, that the whole be most perfectly united and incorporated. Then let it remain twenty-four hours, and cover it well for fear of any dust getting at it.

4. After the faid twenty-four hours are elapsed, put in this pan a quantity of lukewarm water, proportionable to that of the matter, and work well the whole together with two wooden pessels, till the water becomes quite blue, which you will immediately decant off into a china bason, and cover carefully for fear of dust.

5. Put new lukewarm water again on the same passil. Work it a-new as before, and proceed the same as for the first time.—Repeat this operation as many times as you find the water coming blue, and till you perceive

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it begins to turn gray or white, which is a convincing proof that there is no more any thing good in the pastil. -Be careful to range in order the different bowls in which you have decanted your tinged waters; and, to avoid mistakes, number them by first, second, third, &c.

6. Let these waters settle, and when quite clear as when you put them in, decant them again with all the gentleness possible, each into another similar vessel, for fear of loofing any of the ultramarine which lies fixed all round the fides and bottom of the bowls, and might be, though never fo little, carried off with the decanted waters. When these waters are duly decanted off, cover again, carefully, the bowls, for fear of the dust, and let the ultramarine, which lies round them, dry perfectly. When dry, brush it down gently to the bottom, with a new and foft hair brush, and gather your powders separately with the same numbers on each parcel, agreeable to that of the bowls whence they come.

7. The first ultramarine is the finest; the second is not so much so as the first; neither is the third so fine as the second. And it goes thus, decreasing in beauty,

merit, and value.

Observations on the above process.

1. Ultramarine might be drawn from the pastil, by working it with the hands instead of pestles. But, as it fatigues a great deal more the articulations by that fort of working, than by the other, there is room to think, that by this mode of proceeding, each fingle operation might be attended with some imperfection; which is the reason why the pestles are preferable.

2. Some people make their lapis red hot on the bare coals, then steep it in distilled vinegar, repeating this

several times till it becomes fryable.

3. But it is much preferable to make it red hot in a crucible; because, should the fire make it split, the bits will remain in the crucible. Now it need not be wondered at if it does, particularly when calcinations are often repeated.

4. The lapis, which is of a fine blue, and striped with

gold or filver, is the best to make ultramarine of.

5. The lapis is also reckoned to be of a good quality,

when it preserves its fine colour, even after it has been made red hot in blasting charcoals.

XXXVII. Another secret to compose a fine blue, fit for washing, in drawings, instead of ultramarine, which is both too dear, and too strong, to be used for that purpose.

which grows in the fields among the corn. Pick well their blue leaves off, and throw the remainder away. Have lukewarm water impregnated with impalpable powder of alum. Put the above picked blue leaves into a marble mortar with a sufficient quantity of that alum water, to soak them only. Then, with either a wooden or marble pessel, pound them, till the whole is so mashed, as to give easily all the juice by expression through a new cloth. When you strain it, you must do it over a china or glass bowl, in which there is water impregnated with the whitest gum-arabic you can find.

2. Observe that you must not put much alum in the sirst water, if you are desirous of preserving the brightness of the colour: for, by putting too much of that ingredient, as well as of the water impregnated with it,

you darken the tone of the colour.

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3. Note. By means of the same process, you may likewise draw the colours from every flower which has any great eclat. You must not neglect to pound them with alum water, which prevents the colour from suffering any alteration; as it sometimes happens at the very first bruise.

4. To render these colours portable, you set them a-drying in the shade, in china or glass vessels, well co-

vered to fence them against the dust.

XXXVIII. The true secret of making Iris-green.

1. Take a large quantity of the flowers of that name in the spring. Pick them; that is to say, pick out the green and the yellow, which are at the bottom of the petal of the flower. Next to this, pound them in a marble mortar, with a little lukewarm water, impregnated with alum. When pounded, express the juice through a new cloth, over a china bowl. Then mix some gum-arabic water with it.

2. If

2. If you want a tone of colour different from the natural colour of the flower, you may change it by only adding, after the flowers are pounded, a little quick-lime dust in the mortar, and give two or three strokes

of a pestle more to the whole; then strain it.

3. Note. If you should pound these flowers in a wooden mortar, you must be cautioned at least to take care it should not be one of walnut-tree wood, because it is apt to tarnish the colours, and destroy their brightness, which is one of the chief things always required in colours.

4. In the month of March, you may, by means of the same process, obtain the colour from garden, or double violets. But this is never so fine nor so lively.

XXXIX. To make a dark green, whether for the grounds of miniature pictures, or for washing on paper, or, in

short, for draperies and terraces.

Take, towards the end of autumn, a good quantity of wallwort's stalks, with their fruits on them, and very ripe. Let them rot for five or fix days, in the cellar; and, when you see the fruits have somented sufficiently to give easily their juice by expression, strain it through a new cloth in alum-water. Divide the whole into several glass tumblers to dry it more easily. Set them in the air, but not in the sun, and say some paper over them to prevent any thing from falling into the glasses, but which should not at the same time stop the exhalation of the liquor, and thereby cause it to become mouldy. By these means, you shall have a colour sit for the wash of a green hue, and dark at the same time.

XL. To make the Bistre, for the wash.

r. Grind, on marble, with child's water, some chimney-soot. Mullar it thus so long as to bring it to be as fine as possible. When done, put it in a wide-mouthed bottle, which fill up with clear water; and, then, stir and mix all well with a wooden spatula. Let the coarsest parts settle for about half an hour's time, and fall to the bottom of the vessel. Decant out now the liquor gently into another vessel. What remains in the bottom of the first bottle, is the coarsest bistre.

2. Proceed the same with respect to the second bot-

tle, and after having left this to fettle for three or four days, instead of half an hour, decant it into a third.

This gives you the finest bistre.

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3. It is thus you are to proceed in the manipulation of all the colours which are intended to ferve in drawing for wash whenever you will not have them rise thick above the surface of the paper, which would undoubtedly look very bad; for, the neatness required in a draught, forbids the use of any coarse colour.

XLI. The secret for a fine Red for the wash.

1. Make a subtile powder with any quantity of cochineal. Put it in a vessel, and pour so much rose-water over it as will exceed above it by two fingers.

2. Dilute calcined and pulverised alum, while it is yet quite warm, into plantain-water, and mix some of the liquor in which you have dissolved the cochineal.

3. This process will give you a very fine red, much preferable for the wash, to that which is made with vermilion, because this last has too much consistence, and, besides tarnishes too soon, on account of the mercury which enters into its composition.

XLII. A secret to make Carmine, at a small expence.

Break and bruise, in a bell-metal mortar, half-a. pound of gold colour Fernambourg-Brasil. Put this to infuse with distilled vinegar in a glazed pipkin, in which you boil it for the space of a quarter of an hour. Strain the liquor through a new and strong cloth: then set it again on the fire to boil. When it boils, pour on it white-wine vinegar, impregnated with Roman alum. Stir well with a wooden spatula, and the froth that will arise is the Carmine. Skim it carefully in a glass vessel, and fet it to dry.

§ V. Composition of colours, to dye skins or gloves. XLIII. A lively Isabel.

To make a lively Isabel colour, you must, to a quantity of white, add one half of yellow, and two thirds of red and yellow.

XLIV. For the same, paler.

If to a quantity of white, you put only one half of yellow, and another half of red, you shall have an Isabel of a paler hue than the first.

XLV. For

XLV. For a pale filbert colour.

1. Take burnt umber; a little yellow, very little white, and fill less red.

2. This is made darker, only by adding to it a quantity of burnt umber as much yellow; a little white, and

as much red.

3. Its darkness is still increased, if, putting no white at all to the umber you add only some black chalk, a little yellow, and as much red.

XLVI. For an amber colour.

To make an amber colour; to much yellow, you add very little white, and no more red than white.

XLVII. For the gold colour.

To much yellow, join a little more red; and this mixture will give you a very fine bright gold colour.

XLVIII. For the flesh colour.

To imitate well the complexion, or flesh colour, you mix a little white and yellow together, then add a little more red than yellow.

XLIX. The straw colour.

Much yellow; very little white; as little red, and a great deal of gum.

. L. A fine brown.

1. Burnt umber; much black chalk; a little black, and a little red, will make a fine brown, when well incorporated together.

2. The fame is made paler, by decreafing the quantity of black chalk, and no black at all in the above

composition.

LI. To make a fine musk colour.

Take burnt umber; very little black chalk; little red and little white. These ingredients well mixed will produce as fine a musk colour as ever was.

LII. To make a Frangipane colour.

1. This is made with a little umber; twice as much red, and three times as much yellow.

2. The paler hue of it is obtained by adding only fome white, and making the quantity of red equal to that of yellow.

LIII. An

LIII. An Olive colour.

To make the olive colour, take umber, not burnt; a little yellow; and the quarter part of it of red and yellow.

LIV. For the Wainscot colour.

Much yellow; little white; little umber; and of red half the quantity of yellow.

LV. How to make Skins and Gloves take these Dyes.

Grind the colours you have pitched upon with perfumed oil of jessamine, or orange slowers. Then range the grinded colour on a corner of the marble stone. Grind, of gum-adragant, an equal quantity as that of the colours, foaking it all the while with orange flower water. Then grind both the gum and the colour together, in order to incorporate them well. - Put all into a pan, and pour a discretionable quantity of water over it, to dilute sufficiently your paste. Then with a brush, rub your gloves or skins over with this tinged liquor, and hang them in the air to dry. When dry, rub them with a stick. Give them again, with the same brush, another fimilar coat of the same dye, and hang them again to dry. When dry for this second time, you may dress them, the colour is sufficiently fixed, and there is no fear of its ever coming off.

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LVI. To warnish a Chimney.

Blacken it first with black and size. When this coat is dry, lay another of white lead over it, diluted in mere fized water. This being dry also, have verdigrise diluted and grinded with oil of nuts and a coarse varnish, and pass another coat of this over the white.

§ VI. To colour, or varnish, Copperplate-prints.

LV11. To varnish Copperplate-Prints.

1. Have a frame made precifely to the fize of your print. Fix it with common flour-passe, by the white margin on that frame. Let it dry, then lay the following transparent varnish on it, which is to be made without fire.

2. Dilute in a new glozed pipkin, with a foft brush, as big as your thumb, about a quarter of a pound of Venice turpentine, and twopenny worth of spike, and

as much turpentine, oils, and half a gill, or thereabouts, of spirit of wine.—This varnish being no thicker than the white of an egg, lay with your brush, a coat of it on the wrong side of the print; and, immediately, another on the right. Then set it to dry, not upright, but slat. And, if it should not dry quick enough, pass a light coat of spirit of wine on the whole.

LVIII. How to colour these prints, in immitation of Pictures in oil colours.

1. To paint these prints, you must work them on the back in the following manner. Prepare, first, your col-

ours on a pallet, and then proceed thus:

2. The flesh-colour is made with a little white and vermilion, which mix with your pencil according to the degree of redness you will have it .- For the green of tree-leaves, you must have mountain-green, ready prepared from the colourman; and, for the finest green, some verdigrise: As for the lighter shades of these colours, you only add some yellow to either of the above two, more or less, according to the circumstances. - To paint woods and trunks of trees, nothing more is required than umber .- To express sky-colours and clouds, you mix some blue ceruse with white lead; and, with these two colours only, you alter your blues to various degrees of shades, diminishing or augmenting one of the two, according to the darkness or lightness of the fkies which you want to express. For the distances, a mixture of yellow and white lead; &c. and fo on for the other colours you may want.

3. You are to compose them yourself on the pallet with the pencil; and, to mix or unite them, use a little oil of nuts, which you take up with the point of the pallet-knife. Then with the pencil, you apply them on

the wrong fide of the print.

LIX. A varnish which suits all forts of Prints, and may be applied on the right side of it.—It suits also pictures and painted wood.—It stands water, and makes the work appear as shining as glass.

Dilute one quarter of a pound of Venice turpentine, with a gill, or thereabouts, of spirit of wine. If too thick, add a little more of this last; if not enough, a little

little of the former, so that you bring it to have no more thickness than the apparent one of milk. Lay one coat of this on the right side of the print, and, when dry, it will shine like glass. If it be not to your liking, you need only lay another coat on it.

LX. To make appear in gold, the figures of a Print.

r. After having laid on both fides of the print, one coat of the varnish described in the above Art. lvii. in order to make it transparent, let it dry a little while. Then before it is quite so, lay some gold in leaves on the wrong side of the print, pressing gently on it with the cotton you hold in your hand. By these means all the parts, whereon you shall lay these gold leaves, will appear like true massive gold on the right side.

2. Now when this is all thoroughly dry, you have only to lay on the right fide of it, one coat of the varnish described in the preceding Art. lix. it will then be as good as any crown-glass. You may also put a pasteboard behind the print, to support it the better in its

frame.

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LXI. A curious secret to make a print imitate the painting on glass.

Chuse a crown-glass of the size of your print; and

lay on it two coats of the following varnish.

1. Put on the fire, in a glazed pipkin, and let boil for the space of one hour, Venice turpentine, four ounces; spirit of the same, and of wine, equal parts, one ounce and a half of each; mastich in tears, two drachms.

2. After it has boiled the prescribed time, let it cool, and then lay the first coat on the glass; this being dry, lay another; and, as soon as this is nearly dry, then lay on it, as neatly as possible, the print, previously

prepared as follows.

3. Have a glazed veffel so broad at bottom as to admit of the print flat with all ease in its sull size. Let this vessel be also as wide at top as it is at bottom, that you may get the print in and out of it on its flat, without bending it in the least. Pour aquasortis in this pan or vessel, enough to cover all the bottom, then lay the engraved side of your print on that aquasortis. Takeit

out,

out, and wipe the aquafortis off gently with foft rags, then steep it two or three times in three different clean fresh waters, and wipe it each time in the same manner.

4. This being done, lay the right fide on the beforementioned glass, before the second coat of varnish be quite dry, and while it is still moist enough for the print to slick upon it uniformly, equally, and smoothly, without making any wrinkles or bladders. When it is perfectly dried in that situation, wet your finger in common water, and moistening the print on the back part in all the white places, which have received no impression from the engraving of the plate, rub it all off. By these means, there will remain nothing but fairly the printed parts. On them you may paint in oil with a brush, and the most bright and lively colours; and you will have pictures, on which neither dust nor any thing else will be able to cause any damage.—To do this, there is no need of knowing, either how to paint or draw.

LXII. Another to the same purpose.

1. Heat before the fire, a crown glass of the size of the print, and then rub it over with Venice turpentine, which, on account of the heat of the glass, will spread the more easily.

2. Boil next your intended print, in spirit of wine, for about half a quarter of an hour; and then lay it by the

right side on the glass.

3. This glass being cold, wet your finger, and moistening the back of the print, scrape, with your nail, the paper off the glass, so that there remain nothing but the

strokes of the engraving.

4. Boil, in a matrass for about a quarter of an hour, or rather more, and in balnes mariæ, one part of turpentine with four of spirit of wine. Then lay two coats of this composition on the back of the print, after you have feratched off all the paper, and allowing time between each coat to dry.

5. As foon as the fecond coat is dry you may lay on water-colours on the print, according to taste and judgement, and you will have a choice of beautiful pictures,

agreeable to the beauty of the prints used.

LXIII. The

LXIII. The method of chalking, for those who are not ac-

quainted with drawing.

They who are not acquainted with the principles of drawing, may amuse themselves with chalking some beautiful prints, on white paper, where they shall have nothing more to do afterwards than shade, in the same manner as they see done in the original. When they shall have practised for a while in that way, they will soon become able to strike out themselves some goodpiece of design. And to obtain that point, the follow-

ing method is recommended.

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1. With a foft, and one of the best, black lead pencils, rub one side of a white sheet of paper, cut to the size of the print, so that nothing of the paper can be seen, and only the black lead colour.—Lay this sheet, on the clean side, upon the face of the print, that it may not soil it; and on this sheet, the black side of which now lies uppermost towards you, lay another sheet of clean paper, and six these three sheets together by the four corners, and on the edges, with sine minikin pins, so that the sheets may not vary one from another, which would quite consuse and mar the whole design.

2. Now take a blunted needle, or ivory point, and flip it, in pressing gently, all over the turns of the prints, going gradually and orderly for fear of forgetting some places, which may be prevented by laying a flat ruler across the print under your hands. When the whole is sinished, unpin the papers; and, on the under part of that which lays at top, you will find all the outlines of the

print most exactly drawn.

3. You may now, on these outlines, pass a stroke with India ink and a brush, or with ink and a pen; after which, with a crum of stale-bread, you rub off clean all the useless marks of the pencil, and leave none but those marked with ink. And to shade this design, you wash it with India ink, or colours, and a brush.

LXIV. How to prepare a transparent paper to chalk with. In order to render themselves sooner, and more easily, masters of chalking neatly, and not to go out of the sine turns and outlines of a drawing, beginners should

first know how to prepare a transparent paper, which, as it lets them see the minutest parts of the strokes as through a glass, gives them of course an opportunity of acquiring, by practice, a correctness, precision, and truth, in the expression of all the turns of a piece of drawing, be it whatever it will. This preparation then is as follows.

1. Have, one or several, sheets of fine and very thin paper, and rub them over with oil, or spirit, of turpentine, mixed in double the quantity of oil of nuts. To cause the paper to imbibe that mixture, steep a sponge or feather in it, which pass on both sides of the paper, and

then let it dry.

2. When you want to use it, lay it on a print. Then, with a brush, a pencil, or a pen, pass over all the strokes, lines, and turns, of the defign laid under. You may even thus learn to shade with neatness, if you wash that same defign, while fixed on the original print, with

India ink.

Thus practifing often, and for a certain while, you may learn to draw very neatly, and even with boldness, provided you apply with attention, and are bleffed with fome share of memory. This method will certainly prove very agreeable, useful, and entertaining, for those who have not the patience to learn by the common method, which feems too tedious to fome, and generally disgusts beginners.

\* LXV. Another, and more speedy method of making a

transparent paper, to be used instantly.

The above receipt for making transparent paper for drawing being attended with fome difficulty, viz. the length of time which it takes to dry, we thought it would not be unacceptable to the public to be apprifed of another, more speedy, and no way inferior to the other, by means of which, in a hurry, it may be made and used directly, as in a case, for example, where any one, being glad of copying a defign, had not at hand varnished, or transparent, paper.

With a sponge, rag, feather, or any thing, spread lintfeed oil on both fides of any common thin fleet of paper; then, as foon as done, wipe it with a handful of

the foft rags which are fcraped off from leather at the tanner's. The paper is instantly dry and fit for imme-

diate use.

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Note. Nothing else can supply the tanner's leather rags, as nothing could foak the superfluous oil from the paper so tast, and so thoroughly. It is that which dries it so quick, and makes it fit for instant use.

LXVI. A warnish to render transparent the impression of a print which has been glued on glass, and the paper scratched off as mentioned in Art. 1xi. and 1xii.

Take turpentine, and a very little oil of the same. Dilute all well together, and lay one coat of it on the strokes of engraving, which are left fixed on the glass.

# § VII. For painting on glass.

LXVII. How to draw on glass.

Grind lamp-black with gum-water and fome common falt. With this and a pen, a hair pencil, or any thing you please, draw your design on the glass; and afterwards shade and paint it with any of the following compositions.

LXVIII. A colour for grounds on glass.

parts. If you want it to have a little red cast, add a little copper's filings. With a steel mullar, grind all these together on a thick and strong copperplate, or on porphyry. Then add a little gum-arabic, borax, common salt and clear water. Mix these a little shuid, and put

the composition in a phial for use.

2. When you come to make use of it, you have nothing to do but with a hair pencil lay it quite flat on the design you shall have drawn the day before; and having left this to dry also for another day, with the quill of a turkey, the nib of which shall not be split, you heighten the lights in the same manner as you do with crayons on blue paper. Whenever you put more coats of the above composition one upon another, the shade, you must be fensible, will naturally be stronger. And when this is sinished you lay your colours for garments and complexions as follows.

LXIX. Preparation

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LXIX. Preparation of lake, for glass.

Grind the lake with a water impregnated with gum and falt; and then make use of it with the brush.—The shading is operated by laying a double, treble, or more coats of the colour, where you want it darker. And so it is of all the following compositions of colours.

LXX. Preparation of the blue purple, for glass.

Make a compound of lake and indigo, grinded together with gum and falt water; and use it as directed in the preceding article.

LXXI. Preparation of the green, for glafs.
Indigo mixed with a proportionable quantity of gamboge, and grinded together as above, will answer the intended purpose.

LXXII. Preparation of the yellow for the same. Gamboge grinded with salt water only.

LXXIII. Preparation of the white.

You have only to heighten much the white parts with a pen.

LXXIV. The proper warnish to be laid on glass after painting.

Boil, in oil of nuts, some litharge, lead filings, and white copperas calcined. When done and cold, lay it all over the colours which you put on the glass.

LXXV. How to paint on glass without fire.

Take gum arabic and dissolve it in water with common salt, bottle, and keep it. With this liquor, if you grind the colours you intend to paint with, they will fix and eat in the glass. Should you find they do not enough, increase only the dose of salt.

§ VIII. Preparations of colours of all forts for oil, water, and crayons.

LXXVI. An oil to grind colours with, when the works are much exposed to the injuries of the weather.

Take two ounces of mastich in drops, very clear, and grind it with lintseed oil. Then put in a well-glazed pipkin any quantity of that oil, and set it on the fire to boil. By little and little introduce in that boiling oil the

the above prepared mastich, stirring well the whole to mix and incorporate it better. When done, take it off from the fire, and let it cool.—Such is the preparation of oil with which you are to grind your colours, when they are to be much exposed to the injuries of the weather, for they will resist it.

LXXVII. To marble and jasper paper.

1. Grind all the colours you want to employ (such as lake, massicot, indigo, yellow and red ocher, etc. etc.) with bullock's gall; grind each separately, and keep them so. Then have a large and wide pan silled with lukewarm gum-water. Stir well that water with a stick. While it is thus in great motion, and your colours being ready under your hand, with a large brush take of each separately, as much as the tip of the brush will carry, and touch only the surface of the water with it. The colours will immediately expand. Each colour requires a particular brush to itself. Therefore, with another brush, take of another colour, and do the same; and, with another, of another, and so on, till you have put on your water all those you have desined for the purpose.

2. When the water ceases to turn, you will plainly perceive all the variety occasioned by the different colours. Then, taking your sheet of paper, lay it flat on the water, leave it there for about two or three minutes, and, without taking it out, give it one turn round on the water, then pull it by one of the edges to the side of the pan, washit, dry it, and burnish it afterwards.

Note. The paper must be chosen good, and the water

fized with gum-adragant.

LXXVIII. To clean pictures.

Take the picture out of its gilt frame. Lay a clean towel on it, which, for the space of ten, sourteen, sixteen, or eighteen days, according as you find it necessary, you keep continually wetting, till it has entirely drawn out all the filthiness from the picture. Then, with the tip of your finger, pass some lintseed oil which has been set a long while in the sun to purify it, and the picture will become as fine as new.

LXXIX. Another

LXXIX. Another for the same purpose.

Put into two quarts of the oldest lye one quarter of a pound of Genoa soap, rasped very sine, with about a pint of spirit of wine, and boil all together on the fire. Strain it through a cloth, and let it cool. Then with a brush, dipped in that composition, rub the picture all over, and let it dry. Do the same again once more, and let it dry too. When dry, dip a little cotton in oil of nut, and pass it over all the picture. Let this dry again; and, afterwards, warm a cloth, with which rub the picture well over, and it will be as fine as just out of the painter's hands.

LXXX. A secret to render old pictures as fine as new.

Boil in a new pipkin, for the space of a quarter of an hour, one quarter of a pound of grey or Bril-ash, and a little Genoa soap. Let it cool, so as to be only lukewarm, and wash your picture with it, then wipe it. Pass some olive oil on it, and then wipe it off again. This will make it just as sine as new.

LXXXI. An oil to prevent pictures from blackening.—It
may serve also to make cloth to carry in the pocket, a-

gainst wet weather.

Put fome nut, or lintfeed oil, in a phial, and fet in the fun to purify it. When it has deposited its dregs at the bottom, decant it gently into another clean phial, and set it again in the sun as before. Continue so doing, till it drops no more faces at all. And with that oil, you will make the above-described compositions.

LXXXII. A wash to clean pictures.

Make a lye with clear water and wood ashes; in this dip a sponge, and rub the picture over, and it will cleanse it persectly. —The same may be done with chamber-lye only; or otherwise, with white wine, and it will have the same effect.

LXXXIII. Another way.

Put filings in an handkerchief, and rub the picture with it. Then pass a coat of gum-arabic water on the picture.

LXXXIV. Another

LXXXIV. Another way.

Beat the white of an egg in chamber-lye, and rub the picture with it.

LXXXV. A very curious and simple way of preventing flies from sitting on pictures, or any other furniture,

and making their dung there.

Let a large bunch of leeks foak for five or fix days in a pailful of water, and wash your picture, or any other piece of furniture, with it. The slies will never come near any thing so washed. This secret is very important and well experienced.

LXXXVI. To make indigo.

Put some isatis, otherwise woad, or glassum, with slacked lime, to boil together in water. There will rise a scum, which being taken off, and mixed with a little starch, makes the indigo.

LXXXVII. To make a yellow.

What the luteola dves yellow, becomes green by the woad, or glastum. Whence we may justly conclude, that green is not a simple colour, but a mixture of blue and yellow; as the yellow itself is a compound of red and white.

LXXXVIII. An azure of mother-of-pearl.

Take any quantity of superfine tested filver in laminas. Put it a little while in vinegar; then, taking it out of it, strew over the laminas some pounce-powder to alcoholise them. Next stratify them in a crucible; and when red hot, take them off from the fire, and you will have a fine azure.

LXXXIX. A white for painters, which may be preserved for ever.

Put into a large pan three quarts of lintfeed oil, with an equal quantity of brandy, and four of the best double distilled vinegar; three dozen of eggs, new laid and whole; three or four pounds of mutton suet, chopped small.—Cover all with a lead plate, and lute it well. Lay this pan in the cellar for three weeks, then take skilfully the white off, then dry it. The dose of the composition for use is fix ounces of that white to every one of bismuth.

XC. Another

XC. Another white for ladies' paint.

The pomatum which ladies make use of for painting is made as follows.—To four parts of hog's-lard add one of a kid. Melt them both together, then wash them. Re-melt and wash them again. Then add four ounces of ammoniac salt, and as much of sulphur, in subtile powder. This white will keep as long as that mentioned in the preceding receipt.

XCI. A good azure.

Take two ounces of quickfilver; fulphur and ammoniac falt, of each one ounce. Grind all together, and put it to digest in a matrass over a slow heat. Increase the fire a little; and, when you see an azured sume arising, take the matrass off from the fire. When cool, you will find in the matrass as beautiful an azure as the very altramarine itself.

XCII. An assure from filwer, done in less than a fortnight. Dissolve in very strong vinegar, as much gem-salt and roch-alum, as it will be able to dissolve. Put this in a new pipkin; and, over it, hang up laminas of the sinest tested silver. Cover the pot, and lute it well. Burry it in the cellar; and ten or sisten days afterwards take off the azure, which you will find about the laminas. Replace things as before; and, ten days afterwards, the same again; and repeat this process as many times as you can get any azure by it.

The filver laminas may steep in the vinegar if you

think proper.

Besides gem-salt, and roch-alum, some likewise disfolve alkali in the vinegar.

XCIII. To make an azured water.

1. Gather wallwort's grains between green and ripe, and bake or stew them in a pan. When they have boiled a considerable time, strain them through a cloth, and keep the juice in a glass phial; its colour will never change, and will keep for ever very sine.

2. Have next dog's dung very dry. Pulverise it very fine, and fift it through a filk fieve. Then grind it on a marble with the wallwort's juice, and a mullar, as painters do their colours, and you will find this paste of a very fine azure colour.

3. Now,

3. Now, if you tinge any water with this, by putting it in a phial to foak, you may dye whatever you will with it, such as thread, cotton, cloth, &c.

XCIV. Another way of making azure.

Take the bulk of a filbert of ammoniac falt, which you dissolve in a common half-pint glass tumbler of water. Then pound and sist, all together, one ounce of vitiol, and one and a half of quick lime. Put this powder into the water in which the ammoniac salt was dissolved. Leave this to insuse for the space of forty-eight hours, and at the end of that term the azure shall be done.

XCV. A fine azure.

Make an incorporation of three ounces of verdigrile, and of an equal quantity of ammoniac falt which you dilute with a little tartar-water, fo as to make a thick passe of it. Put this composition into a glass, and let it rest for a few days, and you will have a fine azure.

XCVI. Another way.

Pulverise and mix well together one part of ammoniac salt, and two of verdigrise, with a little ceruse. Then pour over it oil of tartar enough to make a clear paste of it. Put this in a glass vessel, which take care to stop and lute well. When done, put it in an oven along with the bread, and take it out with it also, then the azure will be done.

XCVII. Another way.

Take sublimed mercury, four parts; ammoniac salt, two; sulphur-vivum, one. Pulverise the whole, and put the powder in a matrass, which lute well with the lute of sapience. Put this matrass on a mild and slow fire; and, when you see a white sume beginning to rise, stop the fire. When the matrass is cold, break it, and you will find a very fine azure at the bottom. Now take it and work it with lukewarm water first, and then with cold.

Note. There are fome who abfurdly wash it with lye, or a strong lime-water; but they most undoubtedly spoil their azure entirely.—What is most advisable, and indeed the only preparation allowable, is to boil a little white honey in the water, and skim it; and when that

water becomes lukewarm, wash the azure with it. This last may contribute to give it a fine colour, but the other will certainly hurt it.

XCVIII. To make an admirable white lead, fit for oil painting and colouring of prints.

Grind the finest white lead in flake you can find, on the stone with vinegar. It will immediately turn black. Wash it well in a panful of water, and let it fettle. Pour the water off by inclination, and grind it again with fresh vinegar, then wash it a-new. Repeat this operation four or five times, and you will get a most beautiful white.

XCIX. The preparation of verdigrife.

Grind the verdigrise with vinegar, and put it in a piece of brown bread dough. Bake it as you would bread; and, when done, cut it open and take it out. You will then have a very fine verdigrise, fit to work with, either in oil or water, as you like.

C. A fine liquid green:

Mix well together, one pound of Montpelier verdigrife, and half a pound of white tartar from the same place. Put this a-soaking for twelve hours in two quarts of the strongest vinegar, then reduce it by boiling to one half. Let it rest for two days, and silter it afterwards in a bottle, wherein you will keep it for use.

CI. To make the Stil-de-grain, which we call Brown pink.

Bruise and boil in three quarts of water sour ounces of French berries, to the reduction of one half. Strain all through a cloth, and put in this juice a discretionable quantity of whitening, pounded and sisted into a subtile powder, so as to make a thick passe, which you put into small tied bags, & set to dry on tiles. When dry, it is used with gum. And to render it siner, you may put some gamboge. CII. To make a fine vermilion.

Make a mixture of cochineal powder and burnt alum. Stifle it quite hot in rose or plaintain water. It will give you the finest vermilion in the world.

CIII. A secret to draw without either ink or pencil.

Rub a sheet of paper with tripoly. Then, with any
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blunt point, form your drawing on it. Whatever you trace will be visible.

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CIV. To make an imitation of enamel on tin, for chimneybranches, &c.

Get a sheet of block-tin very clean, and cut it in the form, shape, and figure, you chuse to make your flowers and other things. Grind what colours you propose to make use of, with clean water, and each separately, then let them dry. When you want to employ them, dilute them, each apart, with liquid varnish, and lay them on with the brush. Set the work in the open air for fear the colours should run, and when they are a little thickened and consolidated, finish drying them before a gentle fire.

CV. A very valuable secret to make exceeding good crayons, as hard as red chalk. This secret is of the discovery of Prince Robert, brother to prince Palatin.

Grind, on the stone, some tobacco pipe clay, with common water, so as to make a paste of it. Then take separately each colour, and grind them, when dry, on the stone, so fine as to sift them through a silk sieve. Mix, of each of the colours, with your first white paste, as much as will make it of a higher or paler hue, and embody the whole with a little common honey and gum-arabic water.

Note. You must be attentive to make crayous of various degrees of hues in each colour, for the chiaros and escuros, or lights and shades. Then you roll each crayon between two boards very clean, and set them to dry on a sheet of paper for two days in the shade. To complete their drying lay them before the fire, or in the sun: and then you may use them with satisfaction. It is, it must be confessed, a very valuable composition.

CVI. To render the stone-cinnabar and vermilion finer; and, at the same time, to prevent them from blackening.

1. You raise the hue of the stone-vermilion, if, in grinding it, you add gamboge water, tinged with a little suffron. This preparation extends only to the red.

2. With respect to the orange colour you must add some minium to it.

3. For the yellow, put a discretionable quantity of orpine

orpine in cakes, prepared as follows. - Take the fineit orpine you can find, and grind it well with water. Make it in little cakes, and fet it to dry on paper, as you do with every other fort of colour. When dry,

pulverise and use it.

4. For the gridelin, take French forrel and boil it by itself in water, to draw as strong a tincture from it as you possibly can. Then have white lead, (dried in cakes, and prepared after the method above mentioned for the orpine), and grind it a-new with this forrel tincture, then dry it. Grind and dry it again, and repeat this operation with the forrel tincture, till you have obtained the defired point of colour.

CVII. The true process used in the composition of the Eastern carmine.

1. Have a glazed pipkin, quite new, holding fully two English quarts. Wash it with boiling water, then fill it with spring or river water, very clean and filtered. Set it on blafting coals, and when it begins to boil throw in a drachm of chouan in fine powder, which you boil very quick for near a quarter of an hour. Then strain this water through a cloth washed in lye, and not with any foap, and receive it in another new glazed pipkin, cleaned and washed as the first. Put this on a fire, not quite so blasting as the first; and, when it begins to give figns of boiling, throw in one ounce of the finest cochineal, pulverised very fine. Stir often with a little hazel-tree stick, stripped of its peal, and let boil gently for near a quarter of an hour; then throw in fixty grains of autour, in subtile powder, and keep it on the same degree of fire, boiling for half a quarter of an Take it off from the fire, and throw in fixteen grains of Roman alum in powder, then firain it immediately through a clean cloth, washed with lye, and no foap, and receive it in two different large china bowls, capable to contain more than three pints of liquor apiece, new and perfectly clean. Place these in a room, where they will be perfectly free from dust; and let them rest there for a week, that the carmine may have time to make a precipitation.

2. At the end of this term, decant out gently your

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tincture into two other China bowls, of the same size as the two former, & as perfectly clean, taking great care in decanting, to do it so gently that the liquor may not carry the carmine along with it. Then letting dry in a shade the carmine, which shall have been left in the bottom of your bowls, gather it with a little brush, and keep it very cleanly.

3. Eight or ten days afterwards, more or less, decant again the tincture which is in the second bowls, into a new varnished pipkin, then dry and gather the carmine, which is at the bottom, in the same manner as the first.

4. Then fet the pipkin, in which the carmine has been decanted for this fecond time, on the fire, and vaporise the liquor gently, till the ground remains in the confistence of a pap. This pap-like ground must then be put into several small china cups, and place in the sun to dry, which will procure you again another carmine darker, and much less valuable than the first. Should there happen any moistness on your last cups, take it off immediately, but gently, and with a great deal of care.

5. In order to take the water off from your china bowls, you might make use of another method, viz. a very fine and clean sponge, in the following manner. Dip your sponge into very clear and pure water, and there work it well with your hand, soaking and pressing it alternately till you have rendered it very soft. Then press and squeeze it quite dry in a clean towel. Now, if you only approach it to the superfice of the tinctured water, it will immediately fill itself with it, and you may squeeze it into another empty bowl, thus repeating the same process, till you have got it all out of the first bowls; taking care every time you approach it to the surface of the water, lest it should touch the carmine; for no doubt but it would carry some along with the

6. If you dissolve one drachm of mineral crystal into this tincture, by boiling it to that effect for five or fix minutes, it will help a great deal the precipitation of the colour, from which you take out afterwards the water with a sponge, as we said before. Should the water you have thus drawn out be still tinged, you may add some

more mineral crystal to it again; boil it as before, strain it through a cloth, and let it fettle. By these means you will have very fine crimfon carmine.

CVIII. The process observed in making the lake.

1. Take one pound of Alicant kali, or Bril-ash, pulverifed, which put in a kettle with four quarts of spring water. Boil the whole for the space of a quarter of an hour, keeping stirring all the while with a stick, then take it off from the fire, and let it cool, so as to be able to keep your finger in it without scalding. When it is in that state, throw it in a jelly-bag, made of cloth, to filterit, and renderit perfectly clear. Put it, next, in a new glazed pipkin, with one ounce of finely pulverised cochineal, previously diluted by degrees with some of the same lye. Set it a-boiling for half a quarter of an hour, and never cease to fiir with a stick all the while it is on the fire .- You may, if you chuse, add one drachm of terra merita in fine powder, at the same time with that of the cochineal; it will render your lake the reder. -When the whole shall have boiled the prescribed time of half a quarter of an hour, take it off the fire, and let the tincture cool, in order to pass it through a cloth, or the above-mentioned jelly-bag. Set a large stone pan under the bag to receive the tincture which shall filter; and, when all is well drained, take the bag, turn it to throw off all the dregs, and wash it well, inside and outfide, in clear water, and wring it quite dry.

2. Now hang again this same bag at two feet distance, or thereabouts, above the pan wherein the tincture did run, and now is. Dissolve, in about two quarts of warm fpring water, fix ounces of Roman alum well pounded, that it may more readily melt. When this diffolution is no more than lukewarm, have fomebody to pour it for you in the above jelly-bag, while you ftir with a flick what runs from it into your tincture, and do fo till the whole is passed through, and the tincture froths no more. -Then wring well your bag again, to express all the alum's dissolution from it into your tincture, and wash

it again afterwards in clear water, as before. 3. Have another stone pan like the first, hang your bag again over it, and pour all your tincture in it. If it run clear like water, you may then let it go so; if not, put it again in the bag over the other, and continue so to do till it absolutely does run clear. If, however, after having repeated this three or four times, it should continue to run tinged, dissolve two or three ounces more of pulverised Roman alum in about two quarts of that very tinged water, then stir and mix it well in the whole quantity of tincture, then pour it again in the bag where the lake is re-pouring again and again what shall run sirst from it, till it runs quite clear, and does not even stain the paper.

4. Then let well drain the lake which is in the bag; and, with a box-spoon take it, and spread it on pieces of cloth, laid on plaistered stones, and let it dry in the shade where there is no dust, or where, at least, you may

preserve it from any.

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CIX. To make the fine columbine lake.

1. Take half-a-pound of the finest Brasil wood you can find. Cut it in small bits, and pound it in an iron mortar. Put this in a new and glazed pipkin; pour over it two quarts of strong wine vinegar. Let this insuse without the assistance of any heat for three whole days. Boil it next for half an hour, then add one ounce of pulverised Roman alum, and boil it again for the space of three quarters of an hour, that the alum may the more persectly be dissolved, and the stronger the colour.

2. Take the pot off from the fire; and, rasping the softest part of a dozen of sound or cuttle fish bones, add this powder to it. Replace the pot on the fire, and stirthe contents, with a bit of cane, till you see a froth rising on the top of the composition; when immediately taking the pot off from the fire again, you cover it with its lid, and let it stand for a week. During that space of time you must, however, carefully stir this matter, with the cane above-mentioned, four times a-day.

3. Have next a glazed pan, which you fill with dry fand as high as three fingers from the brim. In this fand put your pot half-way in. Place all on a charcoal fire, till it nearly boils; then, taking the pot off from the fire, run the liquor through a clean cloth. Put it in different retorts, and fet them half-way in your fand again, which,

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by this time, ought to be quite cold. Replace all on the fire, as before, and keep it there till it begins to simmer; then, taking it off from the fire, let it cool, and the lake is done. But it must not be used till twelve days after,

during which time let it rest.

Note. When the tincture is in the retorts, you may, if you chuse, put in each of them half a gill of lye, made with vine-branch ashes .- When you put the powder of cuttle-fish bones in the tincture, you must take care it is warm. The residue which is found at the bottom of the retorts ought not to be thrown away, as it is very good to paint in water colours.

CX. A fine red water, for miniature-painting.

1. Put. in a new glazed pipkin, one ounce of Fernamburg Brasil wood, finely rasped. Pour three pints of foring water on it, with fix drachms of fine white ifinglais chopped very small. Place the pot on warm ashes, and keep it there for three days, during which you are to keep up the same degree of heat.

2. When the ising lass is melted, add two ounces of kermes in grain, one of alum, and three drachms of borax, all of them well pounded into powder. Boil this gently to the reduction of one half; then strain the liquor through a cloth, bottle and stop it well, and fetit in

the fun for a week before using.

Note. This water may very properly be used as a wash to give an agreeable bloom to pale faces.

CXI. The receipt of the fine Venetian lake.

1. Take one pound of good pearl ashes. Put it in alarge copper; then, pour over it fix gallons of spring water. Should you not have any spring water, take river, but no pump water. Let the pearl ashes soak thus twenty-four hours, after which, fet the copper on the fire, and boil it for one quarter of an hour. Then filter this lye through a cloth jelly-bag, and receive the filtration in a stone pan.

2. If, at first, the lye did not run quite clear, filter it till it does; and then, changing the pan only underneath, pour what ran thick in the first pan in the bag again. When all is new filtered and clear, put it in the copper again, which must have been previously well

washed, and set it on the fire to boil. When it does boil, throw in two pounds of fine scarlet flocks, which you boil to whiteness. Then filter again this lye tinged with scarlet colour, in the before-mentioned jelly-bag; and press well the flocks, that there may not remain a

ny colour in them.

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Observe, that in order your bag may serve you both for the lake and tincture, without being at the trouble of cleansing it, you must not filter through it the second lye in which the scarlet is. For should you pour this lye from the copper, directly into it, the scarlet flocks would undoubtedly run with the lye, which would give you an infinite deal of trouble to get out of the bag, after the filtering of the tincture. And the least bit of it would entirely spoil the lake. Therefore, to avoid all these inconveniences, strain your second lye either thro' a cloth suspended by its sour corners, or through another bag by itself.

3. While the tincture is filtering, get the copper well fcoured, cleaned, and wiped dry. Put the filtered tincture in it. Dissolve, over the fire, and in a copper or glazed earthen fauce-pan, half-a-pound of Roman alum in one quart of spring water. Then strain it quickly, and, while warm, pour it in your tincture, keeping stirring all the while, and afterwards, till all the froth has quite subsided. Boil, next, all together for the space of half a quarter of an hour. Then throw it in the same bag that siltered your sirst lye, and receive the siltration

into a clean stone pan.

4. Besides this; boil again, in another quart of spring water, half a pound of Fernamburg Brasil wood, cut and bruised in an iron mortar. Strain it through a cloth, and pour it, along with the above dissolution of Roman alum, in the jelly-bag, and stir it to run all together.

5. After all is run out of the bag, throw in again half

a pint of quite clear and pure spring water.

6. When nothing runs any more out of the bag, the lake is left in it. Take it out with a box spoon, as we said in the preceding article, and spread it on plaister states, three singers thick, and about half a foot square, co-

vered with white cloth of the same size. For should there be no cloth on the plaister, the lake would stick to it.

Note. It often happens for the first water which runs out of the bag to be muddy, and to carry some lake along with it. But you must continue filtering till it comes bright and clear. Then, taking off the pan from underneath, and substituting another, you put that muddy liquor into the bag again.—Should, by chance, the filtration continue to run red, as it sometimes happens, you must still keep sitering the liquor through the bag, till it is clarified.

CXII. Directions for colouring prints.

1. All the colours which are used for colouring prints are grinded with gum-water; the calcined green only

excepted, which grinds with vinegar.

2. The chief of these colous are, fine azure, vermilion, Venetian lake, fine verditure, white lead, calcined green, umber, Cologn earth, indigo, French berries' juice, yellow ocher, yellow massicot, white massicot, brown ocher, bistre, or, prepared soot, lamp-black, and brown red.

3. For complections, you make a mixture of white and vermilion, more or less, according as you want the colour more or less bloody. For the lips, it is a mixture of lake and vermilion. And the shades are made with white and vermilion, and a great deal of umber.

4. For fair hair, you join a good deal of white with very little umber. If a carrotty colour, take yellow ocher and brown red; the shade with bistre and lake mixed together. If light and like silver, you only mix

some black and white and umber together.

5. Cloaths are made, if linen, with white lead and a little blue; if stuffs, with white lead alone, and the shades with a grey colour, made by means of a mixture of black and white lead together. If a white cloth, you must make a mixture of white and umber together, and you shade it with a compound of umber and black. If a red cloth, use vermilion in the lighter parts of the folds; lake and vermilion for the clear shades; and the lake alone, laid on the vermilion, will form the dark shades.

CXIII. Directions

## CXIII. Directions for the mixture of colours.

1. The pale yellow, for the lights, is made with white massicot. The chiaro oscuro, with the massicot and umber. The dark shade, with umber alone.

2. The orange colour is made with black lead for the

lights, which you shade with the lake.

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3. The lake is used very clear, for the lights, in dra-

peries; and thicker, for their shades.

4. The purple is made with blue, white, and lake, for the lights; blue and lake only for the clear shades, and indigo and blue for the darker ones.

5. The pale blue is used for the lights, and for the clear shades a little thicker; but, for the darker shades,

mix the indigo and blue together.

· 6. The gold-like yellow is made with yellow massicot for the lights; and the clear shades with a mixture of black lead and massicot; the darker shade, with lake, yellow ocher, and very little black lead; and the darker

of all, with Cologn earth and lake.

7. The green is of two forts. - The first is made with massicot and blue, or blue and white; and for the shades you make the blue predominate in the mixture. -The other is made with calcined green, and French berries' juice, mixed with calcined green; and you may form their shades by an addition of indigo.

8. For trees you mix green and umber together.

9. The grounds are made in the fame way; whereever there is any green, you take calcined green, with French berries' juice.

10. For the distances, you mix green and blue toge-

ther; and mountains are always made with blue.

11. The skies are likewise made with blue, but you must add a little yellow to them, when it comes near the mountains; and, to make the transition between that and the blue, mix a little lake and blue together to foften it.

12. Clouds are made with purple; if they be obscure,

you must mix lake and indigo together.

13. Stones are made with white and yellow mixed together; and their shades with black.

CXIV. Directions for painting fresco. Begin first, by laying on the intended wall a coat of fifted river fand, mixed with old flacked lime, pulverised and sifted also. This coat is not to be laid on the wall, but in proportion as you paint; therefore, you are to prepare no more at a time than you are fure to paint over in one day, while fresh and moist .- The body, of the wall on which you lay this coat must previoully be pargetted with plaister, or with a mortar made with fand and lime. And if the paintings are to be exposed to the injuries of the weather, the mason's work must be made of bricks or free stones very dry.

2. Before you begin to paint, you must prepare your defigns in their full intended fize on paper, and chalk them one after another, as you go on, on the wall, in proportion as you work, and no longer than half an hour after the coat of prepared river fand above mentioned has been laid on, and well polished with the

trowel.

3. In these forts of paintings all the compounded and artificial-made colours, as well as most of the mineral ones, are rejected. They use hardly any other but earths, which may preferve their hue, and defend it from being burnt by the lime. And, that the work may for ever preserve its beauty, you must observe to employ them quickly, while the coat underneath is ftill moift; and never, as some do, touch them over after they are once dry, with colours diluted in yolks of eggs, glue, or gum, because these colours always blacken, and never keep that vivacity and brilliancy those have which have been laid at first when the ground was moist. Besides, in the case of paintings exposed in the air, this fort of touching up is never good for any thing; and, too often, scales off in a very short time.

CXV. Directions for the choice, use, and composition, of the colours employed for the above purpose.

The colours made use of, for the above purpose, are

fuch as follow.

1. The white. This is made with a lime which has been flacked for a great while, and white marble in fubtile powder, mixed in about equal quantities. Sometimes which depends entirely on the quality of the lime, and cannot be known but when you come to use it; for if there be too much marble, the white will turn black.

2. Ocher, or brown red, is a natural earth.

3. Yellow ocher is also a natural earth, which be-

4. The obscure yellow, or yellow other, which is also a natural earth, and slimy, is to be got by the streams of iron-mines. It receives a fine colour from calcination.

5. Naples yellow, is a fort of filth which gathers round the mines of brimftone; and, though it be used in fresco-paintings, its colour nevertheless, is not so good as that which is made of earth, or, yellow other and white mixed together.

6. The purple-red is a natural earth, the product of

England, and it is used instead of lake.

7. The terverte, from Verona in Lombardy, is a natural earth, which is very hard and dark. There is al-

so another fort of terverte.

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8. The ultramarine, or, lapis lazuli, is a hard stone, and of a very difficult preparation. This colour, of the manner of preparing which we shall give (§ ix. Art. exxxiii.) a just and precise account, subsists and keeps itself sine much longer than any other colour. It is not to be grinded, but diluted only on the pallet with oil. As it is very dear, you may spare using it in fresco paintings, and supply it by smalt, which answers the same purpose, particularly in skies.

9. Smalt is a blue colour, which has very little substance. It is used in great landscapes, and stands very

well the openair.

10. Umber is an obscure earth. It requires to be calcined in an iron box, if you want to make it finer, browner, and of a better look.

11. Cologn earth is a fort of rusty black, which is apt

to discharge, and to turn red.

12. The earthen black, is a black which comes from Germany.—There is also another fort of German black, which is a natural earth, and makes a bluish black, like that of charcoal. This fort of black is that which is

used for making printers' ink .- There is another still.

which is made with burnt wine-lye.

Such are all the colours which are preferably to be used in fresco-painting. Grind and dilute them with water .- Before beginning to work, prepare your principal colours, and put each by themselves, in small gallipots. But it is necessary to know, that except the purple-red, the brown-red, the yellow ocher, and all the blacks, (those particularly which have passed thro' the fire) turn paler as the fresco dries.

## CXVI. Directions for painting in oil on a wall. Method I.

You must, when the wall is perfectly dry, give it two or three coats of boiling oil, or more, if necessary, for that the face of the wall may remain greafy, and can foak in no more; then, lay another coat of ficcative colours, which is done as follows. Grind some common whitening, or chalk, red other, and other forts of earth, pretty stiff, and lay a coat of it on the wall. . When this is very dry, then draw and paint on it whatever you will, observing to mix a little varnish among your colours, that you may not be obliged to varnish them afterwards.

## CXVII. Method 2.

There are some who prepare the wall another way, in order it may sooner dry, and that the dampness should not occasion the colours to scale, as it sometimes happens, on account of the oil which refifts it, and prevents it from sweating out through the pores of the wall .- They make a cement with lime and marble dust, or grinded tiles; this they lay on the wall with a trowel, with which they smoothen it, and then give it a coat of lintseed oil with a large brush.-In the next place, they prepare a composition of Greek pitch, mastich, and coarse varnish, which they boil all together in a pipkin, and lay afterwards, first with a brush, then smoothen with a hot trowel, in order to spread it better, and more equally .- When this is done, they lay on the wall the coat of ficcative colours above mentioned, then draw their design and paint. CXVIII. Method 3.

CXVIII. Method 3.

Others again make a cement, or mortar, with lime, brick-dust, and fand. And, when this is dry, they make another with lime, fifted brick-dust, and fmiths' embers, or iron fcum, all in equal quantities. Beat and incorporate all this together, with whites of eggs and lintfeed oil, and it will make fo strong a cement as cannot be equalled by any thing else. Its nature is such, that while you are laying it on, you must not stop and leave it till you have finished, otherwise it will assuredly crack in every one of those places where you shall have resumed your work. Therefore, as soon as you begin to lay it, go on without interruption, till the whole wall is entirely covered with it, and totally polished .- And when dry, lay the above-mentioned coat of ficcative colours, and proceed according to the other directions.

CXIX. Directions for painting in oil on wood.

Lay, first, one coat of fize on the wood; then another of whitening diluted with fize; then another again of boiling oil, as mentioned in the above Art. cxvi. When this last is thoroughly dry, you draw your design, and paint as usual.

CXX. Directions for painting in oil on canvas.

1. Chuse a fine and smooth tick or cloth, which naise on a frame. Pass over it first a coat of size, and when dry, rub it over with a ponce stone to eat off all the knobs and knots. The size which you put first on the cloth is intended to lay down all the threads, and fill up all the small holes, that the colour may not pass through.

2. When the cloth is dry, lay on a coat of fimple colour, which may not destroy the others; for example, brown-red, which is a natural earth, full of substance, and lasting. You may mix it, if you like, with a little white lead, it will dry the sooner.—To grind this colour, they use nut, or lintseed oil; and, in order to lay it as thin as it is possible, they use a large knife made on purpose.

3. When this colour is dry, you are to rub it again with the ponce stone, to render it smoother. Then lay another

another coat of white lead and charcoal black, to render the ground greyish. In this, as well as in the preceding coats, you must take care to put as little colour as you possibly can, to prevent the cloth from cracking, and for the better preservation of the colours which are to be laid afterwards in painting. For it is proper to obferve, that could there be no ground at all laid on the canvas of a picture, previous to the painting of it, and should one paint directly on the bare cloth, without any other preparation at all, the colours would appear much more to their advantage, and preserve their brightness much longer. A proof of this affertion may be found in the practice of Paul Veronese, and Titian, who used to impregnate their canvas with water colours only, and paint afterwards in oil over that ground. This custom of theirs has not a little contributed to render their pieces more lively and bright, because the ground in watercolour draws and foaks the oil off the colours, which must render them much finer, fince the greatest cause of their dulness arises from nothing but the oil with which they are diluted.

4. They therefore, who wish to see their works keep bright and lively, use as little oil as possible, and keep their colours more stiff, mixing a little oil of spike amongst them, which indeed vaporises very soon, but assists in rendering them more study and tractable in

working.

5. Another cause of the colours not keeping a long while their beauty, is when they are too much tormented on the pallet. as it often happens that painters confuse them in working. Whenever this is the case, they must needs be hurt, as there are many which adulterate, and otherwise corrupt, the others, and spoil the vivacity of their taint. Therefore, we cannot recommend too much to be cautious and clean in employing, them, taking care to lay them as distinct and separate as possible, each by themselves, on the pallet, without mixing them too much with the brush or pencil. Never mingle together those colours which are enemies to each other, as all the blacks are, particularly the lampblack; but, as much as possible, try to use them separately by themselves.

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felves. Nay, when there is an occasion of giving more strength to some parts of a picture, slay till it is dry before you touch it up again, if those colours are obnoxious to the others with which you are to do it. Therefore he shows his judgement in painting, who is not precipitate in laying his colours on his pictures, but lays them thick enough, and covers at several times the carnations, which, in terms of art is called empater.

6. As to what concerns the first laying of grounds on canvas in water colours, it is a method not commonly practised, because they may scale, and cannot be rolled without some difficulty. For this reason, the custom prevails of grounding the canvas with oil colours. But when the canvas is good and very sine, the less colour you can lay on for that purpose, the better. Take care only those colours and oils are good.—The lead which some painters use to help their colours to dry the sooner,

soon destroys their brightness and beauty.

CXXI. Which colours are used for the above purpose.

1. Though all the different forts of colours which are used in painting in oil are not fit for that called frefce, yet it is true, however, that (except lime and marble dust, which indeed cannot strictly be called colours) every one of those used in fresco are good in oil. Therefore, without entering into a repetition of those already mentioned in Art cxiii. we shall content ourselves with making only the following addition to them.

2. White lead; this colour is made with lead which you bury. Several years after, this lead turns into some forts of slakes, which are of a very fine white.—Though this white exists in painting, and is in positive use, it has always, however, a very bad quality, which the oil cor-

rects a little, when you grind it on the stone.

3. Ceruse, or flake white; this is a fort of rust gathered from lead, but of a coarser nature than the other.

4. Massicot; there are two forts of this colour. The one is yellow, and the other is white. It is made with calcined lead.

5 Orpine, otherwise auripigment. It is used calcined and non-calcined.—To calcine it, they put it in an iron box, or in a pot well stopped. But sew either cal-

cine it, or even use it at all, as the sumes are mortal, and it is very dangerous to use it.

6 Black lead. This comes from lead mines. They make very little use of it, because it is a bad colour of itself, besides that it is a great enemy to the others.

7. Cinuabar, or vermilion. This colour is drawn from the mines where they gather quickfilver. As it is a mineral, it is the reason why it does not resist the impression of the air, nor the injuries of the weather.

8. Lake. This colour, which is an artificial made one, is composed with cochineal, or with scarlet flocks; or again, Brasil wood, and some other sorts of woods. There are several forts of lake made. It does not stand the weather.

9. Blue v rditure and green verditure. It is very sel-

dom used in any other works but landscapes.

10. Indigo. This colour is generally used for making skies, or draperies; when properly used, it keeps its beauty a great while You must not mix it with too great a quantity of oil, but lay it a little thick and dark, because it discharges very much. They use it with great success diluted with gum-water. It is a good colour for the composition of greens.

11. Brown-pink, otherwise called fill-de-grain. This colour is drawn from what is called French berries, which they soak and boil, then mix the result with vine-wood ashes, or calcined white chalk, to give it a proper consistence. When this is done, it must be strained

through a very fine cloth.

12. Lamp-black. This is a bad colour, but handy to

paint black draperies.

13. Ivory-black. This black is made indifferently with common bones, as well as ivory, burnt. Appelles discovered this fort of black, if we believe Pliny, Book

xxxv. Chap. v.

14. Verdigrile. This is the most pernicious of all the colours, and capable to ruin a whole picture, if there were never so little in the colour with which the canvas is first impregnated. It is however of a very agreeable look. They sometimes calcine it to prevent its malignant effect; but it is as dangerous to use it

that way as orpine; and it is an undoubted truth that, however well prepared as it may be, it must be employed alone by itself, for it would spoil all the colours with which it may be mixed. The chief reason why they use it is, that it dries very much, and for that purpose they mix a little of it with the blacks, which can never dry without some affishance of that kind.

N. B. You must be very careful never to use, for other colours, the pencils with which you shall have laid any verdigrife.

15. There are again some other forts of compound

co'ours, which are never used but in oil.

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CXXII. Which oils are used in painting.

1. The heft oils which are used in painting are those of nut and lintseed. To render the colours more sluid, and foread more easily under the pencil, they use also oil of spike. This oil absorbs itself in the canvas, and leaves the colours without any gloss. They use it also for cleaning pictures; but you must take care it should not carry the colours away with it. It is made with the slowers of a plant called Spikenard or Lavender Spike.

2 There is another oil drawn from Melezian-rosin, firs, &c. wherefore it is called Oil of Turpentine. This fort of oil is also very good for touching up pictures; but it is chiefly good for mixing with ultramatine, and the different forts of smalts, because it serves to make them spread with more facility, and evaporates almost immediately. When you make use of this oil, the less there is of any other oil in the colour, the better, as they all serve only to make it turn yellow.

3. There are other oils again which are denominated ficcative oils, because they serve to dry up the others the sooner. These are many in number and species. One fort is nothing but the oil of nut, boiled with gold litharage and a whole onion peeled, which is taken off after boiling; this onion serving only to exsiccate the greasy parts of the oil, and to clarify it. Another fort is made with azure in powder, or smalt, boiled in oil of nut. When the whole has boiled, you must let it settle, and then skim off the top. It is suttest for diluting the

white, and such of the other colours as you want to

CXXIII. To take off instantly a copy from a print, or a pisture.

Make a water of foap and alum, with which wet a cloth or a paper; lay either on a print or picture, and pass it once under the rolling press; then going round the other fide to take it up, you will have a very fine copy of whatever you shall have laid it opon.

CXXIV. Directions to make the Spanish carnation.

Take bastard saffron; wash, dry, and grind it well. While you grind it, put in sour ounces of pearl ashes to every one pound of saffron. Incorporate them well, both together, and throw it into a double cloth jelly-bag. Then set half a pint of Spanish lemon's juice on the fire, and, when just luke-warm, pour it on the saffron in the bag, and lay under it what you want to dye.—The sufficient is to be dyed ought previously to have been hoiled in alum-water, then rinsed and wiped between two cloths. as a preparatory process to make it take the dye the better.

CXXV. To make the Spanish ladies rouge.

This rouge, is a vermilion, which is carefully liid on a sheet of paper, from which, by means of wetting the tip of your finger with your spittle, you may then take it off, at will, and rub your cheeks, lips, &c. The method of making it is as follows.

- 1. Take good scarlet flocks and spirit of wine, or, in their stead, lemon's juice. Boil the whole in an earthen pot, well glazed and well stopped, till the spirit of wine, or lemon's juice, has charged itself with all the colour of the scarlet flocks. Strain this dye through a cloth, and wring it hard to express well all the colour out. Boil it afterwards with a little Arabic water, till the colour becomes very deep.
- 2. On half a pound of scarlet's flocks you must put sour ounces of spirit of wine, and a sufficient quantity of water, to soak well the flocks. Then, in the colour you extract from it, put the bulk of a silbert of gum arabick.

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rabick, and boil the whole in a filver porringer. When this is ready, as we faid before; proceed as follows.

3. Steep some cotton in the colour, and wet some sheets of paper with it: let them dry in the shade, though in a place by no means damp at all. Repeat this wetting and drying of the same sheets over and over again, as many times as you please, till you and they are charged with rouge to your satisfaction.

CXXVI. A fine lake, made with shell-lac.

1. Boil, and skim well, fixteen pounds of chamber-lye; then put in one pound of fine shell-lac, with five ounces of roch alum in powder. Boil all together, till you see the chamber-lye is well charged with the colour, which you may easily know by sleeping a bit of white rag in it; then take it out again to see whether or not the colour please you; and if it do not, let it hoil longer, repeating the same trial, till you are persectly satisfied.

2. Throw, now, the liquor in a flannel bag; and, without suffering what runs into the pan under to settle, repour it into the bag so many times, till the liquor runs at last quite clear, and not tinged. Then, with a wooden spatula, take off the lake, which is in form of curd; form it into small cakes, or balls, and dry them in a shade on new tiles; then keep them for use.

N. B. For want of chamber-lye, you may, if you chuse, employ a tart lye made of strong pearl ashes.

CXXVII. Directions to make cinnabar, or vermilion.

1. Put mercury (or quick filver) in a glazed dift. Set it on a fand-bath, and let it be well furrounded with the fand every way. Pour some melted brimstone over it; and, with an iron spatula, keep constantly still the whole is converted into a black powder.

2. With this powder, fill the quarter part of a retort with a short and wide neck. Place it first on a sire of cinders. Then increase the sire by degrees, and continue it so for ten hours; after which you may make a blassing one for twelve hours.

3. Observations.—By the first fire, there will arise a black sume.—By the second, a yellow.—And by the

last a red; which signifies the perfect accomplishmene of the cinnabar. As foon as this is the case, let the vessel cool, and you will find, in the receiver, and in

the neck of the retort, a very fine cinnabar.

N. B. There are many who, instead of a glass retort, use earthen, or stone ones, which all equally bear the fre. They make a flow fire for about half an hour, then increase and continue it till they see the red sumes arifing. Both methods are equally good, and answer perfectly the same purpose.

CXXVIII. Another, very different, method of making cinnabar.

1. Melt, in a pipkin, some brimstone over a slow sire. When melted, take it out, and with one hand squeeze a knot of mercury between your fingers through a cloth into the melted fulphur; and, with the other, stir well

till the lump is become quite cold and black.

2. Put this into a fubtile powder, with which having filled the fourth part of a very long retort, you will lute it well, and very exactly, with a good lute. Place it next, without a receiver, for two or three hours on a very mild fire; then introduce into the retort a long funnel which will reach as far as the matter, and even to the bottom of the retort; through that funnel pals a long spatula, which touching also the bottom of the retort, should come out of the funnel five or fix inches. In the middle of the spatula let there be a bang of lute round it, well dried, which will flop fo well the retort as to prevent it from breathing any air. When all this is done, push on the fire to a pretty smart degree, and keep it so for five hours.

3. At the end of this term, draw out the spatula, and introduce, through the same way that it came out, two spoonfuls, or thereabouts, of your prepared powder of brimstone and quicksilver, with which you intend to make cinnabar, and which you shall, for that purpole, have kept warm in a vessel by the corner of the fire, that it may not cool the retort in going in, and thereby

retard the operation.

4. Continue so to do, adding every hour new matter, by means of the drawing out the spatula to introduce

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the new powder, and replacing it quickly, till you have increased your lump of cinnabar to the quantity of one hundred weight .- The spatula's use in the neck of the retort is to prevent its filling itself up by the sublimation of the matter, which would occasion two evils, that of breaking of the retort, and of preventing the introduction of new powder to increase the lump of cinnabar. So that, at the same time it keeps a free passage into the retort, it nevertheless stops it too, by means of the ball of lute which is round it .- But, in the last place, in order there should remain no vacancy in the middle of the cinnabar-lump, take off the spatula for the last time, and inject fresh powder; then, without reintroducing the spatula, stop the retort with a lump of lute only.-Thus, the longer you keep the fire up, the harder and redder the lump of cinnabar becomes.

5. Observations.—This cinnabar is the very same which empyricks use in sumigation, along with aloes wood, myrrh and other aromatics, to excite the mouth, or belly, flux, which they reiterate two or three times, or till that flux is abundant enough to procure the cure of the venerian disorder.—It is the same also which painters make use of; and which enters into the composition of scaling wax.

There are alchymists who maintain, they can with the natural or sistitious cinnabar we have just mentioned refolve irreductibly either gold or silver; because they are of opinion, that these metals have sprung from it in the entrails of the earth. But it is proper to tell them here, that they would not perhaps commit so gross an error, if they attempted this process with the cinnabar, which the philosopher endeavours to draw from quick gold and silver, and which are known to him alone. To which restection I shall add, that he to whom quick gold and silver are known can do with them also every thing as with the metals; but as the old saying is, Non licet omnibus adire Chorintam.

CXXIX. An azure as fine as, and which looks similar to, ultramarine.

Grind well together into powder three ounces of ammoniac falt, and fix of verdigrife. Then wet it, in con-K 2: tinuing tinuing to grind it with oil of tartar, till you have made it pretty fluid. Put this into a glass matrass, and bury it for five days in hot dung. At the end of that term you will find your composition turned into a fine azure.

CXXX. The same, another way, as practised in Germany. Here is another method of proceeding, to make axine, as they practise it in Germany, and which is very

fine and good.

1. Diffil, in an alembic, one pound of vitriol, half a pound of nitre, and three ounces of cinnabar. In this water put tinfel or copper; they will diffolve. When the diffolution shall be perfected, add a sufficient quantity of calcined pewter to render your liquor quite milk-white. Let the whole rest for three days, and then you will have a middling azure.

2. A very good observation. The liquor which stills from the vitriol, cinnabar, and nitre, has the power to dissolve any fort of metal whatever.—It has again this additional virtue, that if you rub the forehead of a horse with it, the hair will instantly turn, and remain, white

at that place.

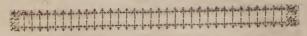
CXXXI. Another very fine azure.

Dissolve, in one pound of the strongest double distilled wine vinegar, two ounces of ammoniac salt in powder, one of copper silings, and one pound of the whitest eggs shells calx. Put this composition into a copper vessel, which you must stop and lute so well, with its copper lid, that nothing can possibly exhale from it. Place this for one month in hot horse dung, and at the end of that term you will find a very fine azure.

CXXXII. Another.

Take vitriol calcined to redness, one part: fulphur vivum, two; and quick filver, three. Mix well all into one powder, which you must put into a glass retort, and bury it over in hot horse dung for forty days; after which term the composition will be turned into a very fine azure.

CHAP. VI.



## CHAP. VI.

SECRETS relative to the ART of GILDING.

I. The method of gilding with fize, or with oil.

HE gold leaves which are commonly used in gilding are of different fizes, as well as of various degrees of thickness, as there are some the thousand of which comes to no more than three pounds altogether, and others which come to three pounds ten shillings, and four pounds, per thousand.

To gild on iron and other metals, the strongest and the purest are preserable. That which is not so pure is commonly employed by carvers in wood, as it comes.

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We are indebted to the discovery which has been made a few ages since, of the secret of painting in oil, for the means of gilding in such a manner as to refift the injuries of the weather .- An art the ancients were not acquainted with, and they could not obtain from their method of applying gold, fince they used nothing else but whites of eggs for gilding marble, and fuch other bodies as do not admit of being committed to the fire. As for the wood, they made a composition which was ufed with fize. But neither fize nor whites of eggs canreful the water. Therefore they could not, with propriety, gild any other works than such as were sheltered from the intemperance of the weather, viz. their arches, their cielings, which were all gilt in that manner. The composition they used for gilding on wood was made of a flimy earth, which held the place of the fized white we use now-a-days, and with which gilders make that first coat, called by artists affictte, or burnish-gold size.

II. To gild with fize, or what is called in burnish-gold.

1. You must first begin by preparing your size, which is made as follows.—Take about a pound of odd bitts of parchinent, or leather, such as is prepared for gloves or breeches. Put this a-boiling in a pailful of water,

till it is reduced to one half, and your fize is done as it.

ought to be.

2. When you want to use it for wood which is to be gilt, it must be boiling hot, otherwise it would not penetrate sufficiently into the wood. If you find it too strong, you may weaken it, by adding water to it. Then with a brush made of boar's bristles, you lay the size in smoothening, if it be a plain work; but, if a carved one, you must lay it in stumping with the brush; either of

which ways is equally termed to fize.

3. When the wood is thus prepared with fize only, you must make another preparation, called an infusion of white, in the following manner. Take a certain quantity of fize boiling hot, as much as you think will be sufficient for your work. Dilute a discretionable quantity of pulverifed whitening in it, and let it infuse some time. When it feems well diffolved, strain it through a cloth to make it finer: then, with a brush, as above, give seven or eight different coats of it in Aumping on your work, and two more coats in smoothening, if it be on carved work; but if on a plain one, you must give a dozen of coats at least; for the white is the nourishment of gold, and serves to preserve it a great while .-You must be very careful not to give coat upon coat, unless the last be dry; otherwise the work might scale. You must even have a great care that each coat should be laid on as perfectly equal as possible, both in the ftrength of the fize, and thickness of the white, to avoid the fame inconveniency.

4. When you have given the requisite number of coats, whether in stumping, or in smoothening, you must let the work dry thoroughly before you polish it. As soon therefore as it is perfectly dry, you must have a coarse rough cloth, quite new, and as closely weaved as possible, with little deal sticks, cut square, angular, or pecked, according as the nature and carving of the work require; and, thrusting one of these sticks into the cloth, you rub and smoothen the white. Then, taking a brush made of boar's bristles, which has been already used, because it is softer, dip it into some clean water, and wet the work in proportion as you go on in polishing, with

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your little sticks wrapped up in cloth. This precaution completes the smoothening of the work, by levelling the small bumps and imperceptible undulations you may have made either in giving the white, or in polishing it. For, the smoother the work is made, the more easy to be burnished the gold will be, after having been applied. The wetting and brushing thus your work, in proportion as you polish it, with a brush a little worn, has again that other object of cleansing it of the mud you occasion in so doing; therefore spare not to purge your brush of all the filth it gathers about the point of its hair, by washing and squeezing it again as soon as you see them grow thick in the least with that dirt.

5. When the white is once more dried, rub it with shavegrass, or rushes, in order to level still better all the grains and inequalities which may be on it. Do not however rub it too much with the shavegrass, because you may thereby fall from one error into another, and make your white what is called greafy or sineary, which would prevent it afterwards from uniting with the burnish go'd size, which is to precede the laying on the gold.

6. Now, as it is difficult that after ten or a dozen of coats of white the carving should not be choaked up, they who are fond of finishing their work highly, take a certain iron instrument, made on purpose, and curved by one end, (called by the French, a fer-a-retirer); with this raffling crook they go over all the turns, and open all the places which want it, to reflore them to their former sharpness. Or else, you take what is called a fermoir, or a gouge, or a cizel, and give to the ornaments the same form which the carver observed when he first cut them, turning agreeably the sides of leaves according to nature; then bretelling with another in-Arument, called the veining-crock, (in French fermoira-nezrond), all the ornaments, you thereby render the work much neater, and more delicate than the carver had first made it. That you may cut the white more meat, o' ferve only to wet it a little with a brush.

7. When works are not of great confequence, you may easily fave yourself all that trouble; principally if the carving is pretty neatly finished, by giving two cr

three coats only of white very clear. But, as it is very true the white is the principal and only support of gold, this operation is never so perfect, nor stands so long; and the carving feems a great deal more rough than when it has received ten or twelve coats of white, and been afterwards re-cut, carved, veined, and repaired over

again, as I said before.

3. After every thing has been performed about the white, which could be required to completely finish that preparatory part, you must dilute some yellow ocher, and grind it with fized water, weaker by half than that which you used for the whitening. And, having made it a little fluid and warm, you lay one coat of it over all the work, principally in such deep places of the carving as you cannot come at to lay the gold

leaf, that this colour may supply its want.

9. When the yellow is dry, you must lay over it (in all the raised places, but not in the bottom grounds) three different coats of another fort of composition, called in French affiette, and here, burnish gold size, made and prepared in the following manner -Bol armenian, about the bigness of a nut, and grinded by itfelf; blood stone, or red chalk, the bulk of a horse bean, and black lead pulverised as big as a pea, grinded both together; and at last one drop or 'two of tallow, which you grind afterwards with ail the other drugs and water, taking them little at a time, to grind and incorporate them the better.—Put this composition in a cup, and pour over it some of your afore-mentioned fize, boiling hot, and strained through a cloth. Stir and mix all well, while you pour that fize, that the whole may be well diluted. The fize you make use of in this case must, to be right, be of the consistence of the jelly you eat, and no more, when cold .- There are those who mix again besides, with this composition, a little foap, or olive oil, with a little of calcined lampblack. Others add burnt bread, bistre, antimony, tinglass, butter, sugarcandy, &c. every one according to his own way. All these sorts of grease serve to facilitate the burnishing of the gold, and help to give it more brightness. Be, however, this composition made how

it will, observe to keep it warm over hot ashes in a chaffing-dish, whenever and while you use it. The brush you lay it on with ought to be fost, and the first coat you lay pretty thin; but, as for the two others, they must be so thick that the stuff should run with diffi ulty from the brush. Each coat must be well dried before giving the next. And, when the last is also perfeetly dry, take a stiffer brush with which you dry rub the work all over, to smoothen all the grains and little rifings of the gold fize, and thereby facilitate the bur-

nishing of the gold.

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10. The gilding is now performed as follows. Have first a pipkin very clean, in which you put some very clean and filtered water, and a few wetting pencils, which eight to be made in the form of those ermine tails which hang in the ermine skins .- Get rexta cushion, which is to be made with a light and flat square board covered with a calf leather, fixed all round with nails, and stuffed underneath with cotton. Let this cushion be also surrounded by the back part, and two thirds of each of the two fides, with a band of parchment of five or fix inches high, to prevent the air, which is always fluctuating about you, and fill more fo if any body should happen to pass and repass in the place where you fit, from blowing the gold leaf which is laid upon

11. To apply the gold, you proceed thus. Hold your cushion in your left hand along with the gilding pencils, which are to be of different fizes. On this cushion put what quantity of gold leaves you think proper. With the gilding knife spread these leaves very smooth, in doing of which you will affift yourfelf very much if you breath over them while you pass the knife under. Then eut it in as many parts and fizes as you want, or, if there be occasion for it whole, take it with your tip, and lay it .- A tip, (in French, palette), is an instrument made with the point of a squirel's tail placed upon a round flick flattened, and about half an inch wide by one end, with a flit, to fet and spread the better the squirel's tail.—This tip therefore you pass along your cheek, and with it take off the gold leaf, or what part

of it you have divided, and thus lay it on the work. Previously, however, to this, you must have passed on the place one of your pencils immediately before the laying of the gold, otherwise the gold would be inceffantly flitting and cracking .- As foon as the gold leaf is laid on the work, take your water pencil quite wet. and passing it above it on the work, let the water run from it under the leaf just applied; this will immediately make it spread and ketch. But if it should pass over the gold leaf, it would immediately spot and spoil it; and as it is impossible to lay gold on gold, especially when wet, you would not be able to repair it unless you take the gold leaf entirely off, and put another in the Read. On the contrary, by the water flipping under the gold leaf just laid, you will find that this spreads infinitely more easy, and almost of itself; it slicks f ster on the gold fize, never feratches, is more easily dusted for burnishing, or matting with fize; in short the work looks infinitely better in every respect. - As a is impos-Tible with all possible care one can take. but there may happen some little accident now and then principally in carved works, you must, in such a case, cut some fma'l bits of gold, which, with a pencil, you take and put on the defective places when you look your work over; and this is called faulting the work, in French ramender.

where you think proper, in order to detach certain parts from the other, to make them fet off and flow to better advantage. To that effect you use an instrument called a burnisher, made either of a real Wolf's tooth, or rather, as they now use it, an agate, made in the same form, and sinely possibled, or eise a pubble called blood stone.—Before burnishing, you must, with the crooked point of your burnisher, push down all the parts of gold in the hollow parts which you forgot to do with the pencil, then dust it with a large one. When the work is burnished where you want it to be so, you matt and rep so, with a very soft pencil and burnish gold size, what has not been burnished; or, you may again put some vermilion, to raise the gold, and make it put some vermilion, to raise the gold, and make

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look brighter; which is called, in term of art, repassing. 13. There is again another repassing you must not forget, which is to lay, in all the hollow places of a carved work, a coat of a composition of vermilion, as I am going to prescribe, and which will give an incomparable fire to the gold, and make it look as gold-fmith's work. This composition is such .- Grind together, on marble, some vermilion, gamboge, and red brown, which you mix with a little Venetian turpentine, and oil of curpentine. There are who make it otherwise, and ule only fine lake, and others, dragon's blood; but the first receipt is the best. - If, after having burnished, matted and repassed your work, you find again some defective places, you may mend them with gold in shell, which, as you know, is diluted with a little gum arabic, and applied with a pencil. This fort of faulting, which is no fivall addition to the beauty and richness of the work, the French call buckling with gold in shell.

II. To gild without gold.

Put in a crucible one ounce of ammoniac falt, and half that quantity of common mercury. Cover and lute well the crucible for fear the mercury should exhale. Give this a small fire for the space of half an hour. Increase the fire afterwards till the crucible is quite red hot. Then throw the composition into a pan of cold water. As foon as this matter is cold, it will be as hard as a stone. Break and grind it, and dissolve it in gum water Wherever you lay a coat of this, it will look like gilt.

III. Another to the same purpose.

To gild frames, and other common things, pulverise and incorporate well together the volk of an egg with two ounces of mercury, and one of ammoniac falt. Put this into a matrass, stop it well, and set it, for four and twenty days, in hot horse dung.

IV. A gold without gold.

Grind some purpurine with water; then put it to foak with chamber lye in a pan; stir and skim it. When it has done throwing any four, decant the chamberlye, and supply it by gum water. Whatever you write

or draw with this composition will look as gold itfelf; and it admits even of being burnished with the burnisher.

V. The preparations of the gum-water.

In half a pint of common water put two ounces of gum arabic, bruifed in small bits. When dissolved, it makes the right degree of gum-water to be used for the above purpose.

VI. To write in gold or filver.

Draw the juice of juniper leaves. In this juice throw some gold or filver filings, which you set there to insuse for three whole days: then make the trial.

VII. To gild on glasses, earthen, or china wares.

Take a glass, or a china cup; wet it, and lay your gold where and how you like, then let it dry. Disfolve some borax in water, and of this liquor lay a coat on your gold. Set it in the fire till your glass powder in melting makes a varnish on the gilded parts, which will then appear very beautiful.

VIII. To write, or paint, in gold colour.

Pulverise some purpurine into subtile powder; then water it over, gently, and by little at a time, with chamber-lye, turning incessantly, while you pour, with a stick. Let it settle, and wash it in common water, so many times till you see the water comes out at last quite clear. Each time you change the water take particular care to allow a sufficient time for the settling. Then mix aster the last water is poured away, some powder of saffron and gum-water with your ground, and either write or paint, which you like. This secret is by no means an indifferent one; and you will find it very agreeable if you try.

1X. To write, or paint, in filver, especially with a pen-

Pound well, in a bell-metal mortar, fome tin-glass; then grind, and dilute it, on porphyry, with common water. Let it fettle, and throw off the water, which will be black and dirty. Reiterate this lotion fo many times till the water remains clear. Then dilute it in gum-water, and either write or paint with it. It will appear

appear very handsome, and no ways inferior to the finest virgin filver.

X. To rubiten and filver copper medals.

r. Take filings from Cornwall pewter and make a bed of them at the bottom of a pipkin. On this bed lay one of your medals, taking care however they should not touch each other. Make another bed of silings over these medals, and ore of medals again on these silings. Continue this alternate stratisfication of medals and silings, till you have laid all the medals you wanted to whiten.

2. When this is done, fill up your pan with water, and put on it a powder composed of roch-alum and tartar from Montpellier, well grinded and mixed together. Boil the whole till the whitening of the medals is complete.

N. B. They must have previously been cleansed with soft sand, or strong lye, to purge them from any

greafe.

XI. A water to gild iron.

In three pounds of river-water, boil roch-alum, one ounce, Roman vitriol as much, verdigrise half an ounce, gem salt three, and orpine one. Then add tartar half an ounce, and the same quantity of common salt. Boil it again with this addition. Now heat your iron, and when warm, rub it over with this stuff quite hot, then dry it by the fire, and burnish.

XII. To whiten exteriorly copper flatues.

Take filver-cryflals, ammoniae, gem, common and alkali, falts; of each of all thefe two drachms. Make all into a passe with common water. Lay your figures over with it, and set them on red hot charcoals till they smoak no more.

XIII. To write in gold letters on pots, or boxes.

Diffolve ifinglass in water. When reduced into a fize, or glue, dilute some red tartar with it, after having made it into a very subtile powder. With this mixture, and a pen. or a pencil, write on your pots or boxes; then put a thick gold leaf on it of the same fort as metal gilders use. And, when this is dry, burnish as usual.

XIV. To gild silver in water-gilding without the assistance of mercury.

1. Take first the finest gold, forge it weakish, then cut it in bits and neal it, on an iron plate, or in a cru-

cible.

2. Have next a glass matrass, put your gold in, and to every drachm of gold, put half a pound of ammoniac falt, and two ounces of good aquafortis. Cover the matrass with a sheet of paper, turned conically by one of its corners upon one of the long fides, fo as to form a fort of funnel or grenadier's cap figure, with the smallest and not quite close, but terminated in a small orifice, to give a free passage to the fumes of the aquafortis. Set this matrass on a very slow fire, that the gold may have time to diffolve gently and gradually, and shake often the matrass to help the dissolution. Be very careful not to make the fire too firong; but, on the contrary, let it be very mild, for the gold would infallibly sublime and waste itself all into vapours.

3. When the gold is entirely diffolved, pour this liquor into a glass, or china bowl; wet some old coarse linen rags on them, which you fet to drain on small flicks on another bowl, doing the fame with what drains from them till you have used all your liquor; then dry

them before a gentle fire.

4. When dry, lay them on a marble stone, and set them on fire. And as foon as they are confumed, grind them into a fine powder, which you put afterwards into a crucible on a little fire. When this powder is lighted like sparkles of fire, put it on the marble again, and flir it with an iron rod till you fee no more fire. Grind it then again as before, as much as you possibly can, and it is fit for gilding any fort of filver work you pleafe.

XV. The liquor, called the fauce, which is to be used for colouring silver plates, gilt with the above described

powder.

1. Grind well together, into a subtile powder, sulphur and pearl ashes, of each one ounce, and two of common falt.

2. Then, when you want to colour your gilt plates,

have a quart of water, and half a pint of chamber-lye, in which you mix a large spoonful of the above powder. Set this to boil in a red copper pot. very clean. When this sauce does boil, you must tie your plate with a filver wire, by which you hold it, and then plunge it in; there leave it for about a minute, or two at most; then take it out again by the same wire without touching it with your hands, and plunge it in the same manner in cold clean water. Should it then not look high coloured to your satisfaction, you have but to put it again in the sauce, as before, till you find it sufficiently coloured.

3 The next step is to give the piece thus coloured to the burnisher, with a strict charge not to use any vinegar in his burnish. This receipt is a very good and par-

ticular secret.

XVI. A water which gilds copper and bronze. A fecret wery ufiful for watch and pin makers.

Diffolve equal parts of green vitriol and ammoniac falt in good double distilled vinegar; then vaporate the vinegar, and put it in the retort to distil. If in the product of the distillation you steep your metal after being polished and made hot, it will come out perfectly well gilt.

XVII. Another.

Take burnt copper and ammoniac falt, equal parts; alumen plumeum, four ounces; common falt decrepitated, as much. Dissolve the whole in double distilled vinegar, then vaporate this vinegar. Distil from the rest an aquafortis in which, if you extinguish, sive or six times, brass, copper, iron, or silver, made hot, these metals will assume the colour of gold.

XVIII. A water to gild steel or iron, after being well polished.

Take seven ounces of orpine: terra-merita, one and a half; socotrine aloes, sour and a half; gamboge three and a half. Put all into powder, and put it in a retort, with so much of pickle water as will coverthese powders by two singers. Stir well and mix all together: let it insuse source four and twenty hours and distil. With the siquer

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which shall come from the distillation, and which you may keep by for use, rub the steel, iron, or copper, and set it to dry in the shade.

XIX. To silver copper figures.

1. Cleanse well first the figures with a strong lye, made with either pearl or brill ashes, or common salt or alum, no matter which. Wipe them well when done, and rub them with a composition of tartar and ammoniac salt mixed (by means of aquasortis) with a little dissolution of silver.

2. Now with a piece of leather, wetted in your spittle, take of these powders, and rub the copper figures till

they are sufficiently silvered.

XX. To filver, or gild, pervter.

1. Take one of the finest and most delicate gold-smith's wire-brush; rub your pewter with it so as to mark it with the strokes of the brush. When done, lay a double gold or silver leas on that place of the pewter; then put over it a piece of skin or leather, and over that skin some putty. With a burnisher rub, for a good while, on that putty; then with a piece of pewter on

the naked gold without either skin or putty.

2. Have a care that the pewter which you are thus a gilding should be very clean, and that your breath should not go over it. Therefore, to do that operation, you must put your handkerchief before your mouth, and manage it so in tying it, that there should be a passage preserved on each side of your face which should drive your breath along your cheeks, round your head, and quite up behind your ears.

XXI. A composition to lay on lead, tin, or any other metal, in order to hold fast the ready gilt leaves of pewter which are applied on it; useful for gilding on high see-

tles, domes, &c.

1. Melt together, on a flow fire, black pitch, two pounds: oil of turpentine, four ounces; and a little rofin. When the whole is diffolved and mixed well into a kind of varnish, lay a coat of it on your work.

2. Now, as upon steeples, the common method of gilding cannot, on account of the wind, be practifed; have only the exact measures and dimensions of the place

place intended to be gilt, then, at home, and at leifure, cut to them some sine leaves of pewter, and gild them as usual. When done, you have no more to do but to carry up these pewter leaves, rolled, in a basket; and, having burnished the place on which they are to be applied with the above composition, lay the gilt pewter leaves on it, and they will stand fast enough.

XXII. To clean and whiten silver.

1. Rasp four ounces of dry white soap in a dish. Pour a pint of warm water on it.—In another dish put a penny-worth of wine lye dried in cakes, and the same quantity of the same water.—In a third dish put also another penny-worth of pearl ashes, with another similar quantity of the same water.

2. Then, with a hair brush steeped first in the wine lye, then in the pearl ash, and lastly in the foap liquors, rub your silver plate, and wash it afterwards with warm water, and wipe it with a dry cloth kept on a horse before

the fire for that purpose.

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XXIII. The preparation of gold in shell.

Take ammoniac falt, and gold leaves, equal quantities. Bruise this in a morter for two or three hours; and towards the end add a discretionable quantity of honey.

XXIV. To bronze in gold colour.

Rub the figure first with aquafortis, in order to cleanse and ungrease it well. Then grind, on porphyry, into a subtile powder, and mix with lintseed oil, equal quantities of terra merita and gold litharage. With this composition paint the figure over.

XXV. Another to the same purpose.

Take gum elemy, twelve drachms, and melt it. Add one ounce of crude mercury, and two of ammoniac falt. Put all in a glass phial, and fet it in a pot full of ashes; lute well the phial, and melt the contents. When perfectly dissolved, add a discretionable quantity of orpine and brass filings; mix all well, and with a pencil paint what you will over with it.

XXVI. How to matt burnished gold.

Grind together, blood-stone and vermilion with the white of an egg. Then, with a pencil, lay it in the bottom grounds.

XXVII. How

XXVII. How to do the same to burnish silver.

Grind ceruse-white with plain water first, then with a very weak isinglass water, and make the same use of this as of the other.

XXVIII. The method of applying gold, or filver, in shell, on the wood

Black wood, or that which is dyed fo, is the fittest to admit of this operation. The method of applying it is this.

t. Take a little gum adragant, which you dilute in a good deal of water, to make it weak. With this weak gum water dilute your gold or filver; and, with a pencil, lay it on fuch places of your work as receive and shew the light, without touching on those which are the shades. To express these, touch the parts with indigo diluted in a very weak gum-arabic water.

2. When this is done, lay one coat of drying varnish, made of oil of spike and sandarack. If the varnish be too thick, thin it with a little oil; and, in mixing it, take care not to boil it so hard but you may bear some on

your hand without scalding the place.

N. B. Have attention to make your gum-waters for this fort of work always very weak; otherwise they would tarnish and spoil all the gold or filver.

XXIX. To gild fandy gold.

Take any colour, and grind it either with oil, or with gum. Lay a few coats of it on your work, according as you think there may be need of it. When dry, lay one coat of fize, and while it is fill fresh fift some brass shings on it; let it dry so, and varnish it afterwards.

XXX. The marnish sit to be laid on gilding and silvering.

Grind verdigrise, on marble, with common water, in which you shall have insused suffron for eight hours.

XXXI. The method of bronzing.

Take three pennyworth of spal, one of litharage, a gill of lintseed oil, and boil the whole to the consistence of an unquent. Before you apply it dilute the quantity you intend to make use of with turpentine oil, and lay a coat of vermilion on the work before bronzing.

XXXII. A

XXXII. A water to gild iron with.

1. Put in a glass bottle, with a pint of river-water, one ounce of white copperas, and as much of white-alum; two drachms of verdigrife, and the same quantity of common falt. Boil all together to the reduction of one half. Then stop the bottle well for fear the contents should lose their strength.

2. To gild the iron with it, make it red hot in the

fire, and plunge it in this liquor.

XXXIII. To make the fine writing-gold.

1. Take gold in shell, and sulphur, in the proportion of ten drachms of this, well grinded on porphyry and amalgamated, to every fequin-worth of the other. Put this mixture into a proportionable leather bag, in which you shall work it continually for the space of two days. Then pour all into a crucible, and burn it on a flow fire. This done, wash what remains with filtered lime water, and, by filteration also, get your water out again from the composition. If, after this operation, you do not find it high enough yet in hue, wash it again and again in the same manner, till it looks fine.

2. To apply it, dilute some bol armenian with ifinglass, and write what you please, and let it dry; then

apply your gold, and when dry burnish it.

XXXIV. How to get the gold, or filver, out of gilt plates. 1. Mix together one ounce of aquafortis, and one of spring water, with half an ounce of common, and one drachm of ammoniac, falts. Put all on the fire, and boil it; then put in to foak the plate from which you want to get the gold or filver out. A little while after, take your plate out, and scrape it over the liquer.

2. The gold will remain suspended in this regalwater; and to make a separation of them, pour in it double the quantity of common water; or again, throw a halfpenny in it, and boil it, and all the gold will fix

itself to it.

XXXV. To gild paper on the edge.

1. Beat the white of an egg in three times its quantity of common water, and beat it till it is all come into a froth. Let it fettle into water again, and lay a 2. Next, coat of it on the edge of your paper.

2. Next, lay another of bol armenian and ammoniac falt, grinded with foap fuds. Then put the gold, and let it dry, before burnishing it.

XXXVI. To gild on vellum.

Mix some fassron in powder with garlick juice. Put two or three coats of this on the vellum, and let it dry a little, but not quite. Then breathing on the coat, apply the gold leaf with cotton; and, when dry, burnish it.

XXXVII. Another way.

Lay first a coat of lime and burnt ivory, grinded together with a weak isinglass water. Apply the gold on it; and, when dry, burnish it.

XXXVIII. Another way.

Grind and mix together four ounces of bol armenian, one of aloes, and two of flarch; dilute it in water, and lay a coat of it on the vellum, then the gold immediately. When all is dry, burnish it.

XXXIX. A gilt without gold.

Take the juice from faffron flowers, in the feafon, or dry faffron in powder, with an equal quantity of vellow orpine well purified from its earthly particles. Grind all well together, and put it a-digefting in hot horfe dung for the space of three weeks. At the end of that term you may use it to gild whatever you like.

XL. To gild without gold.

Open a hen's egg by one end, and get all out from the infide. Re-fill it again with chalidonia's juice and mercury; then flop it well with mastich, and put it under a hen which just begins to set. When the time of hatching is come, the composition will be done, and sit for gilding.

XLI. To gild on calf and sheepskin.

Wet the leather with whites of eggs. When dry, rub it with your hand, and a little olive oil; then put the gold leaf, and apply the hot iron on it. Whatever the hot iron shall not have touched will go off by brushing.

XLII. Gold and filver in shell.

1. Take faltpetre, gum arabic, and gold leaves, and waste

wash them all together in common water. The gold will fink to the bottom, whence pouring the water off you may then put it in the shell.

2. I'ne filver is worked in the fame manner, except

the faltpetre, instead of which you put white falt.

XLIII. To gild marble.

Grind the finest bol armenian you can find with lintfeed or nut oil. Of this you lay a coat on the marble, as a kind of gold fize. When this is neither too fresh, nor too dry, apply the gold; and, when thoroughly dry, burnish it.

XLIV. To apply gold on glazed wares, chryfial, glass, china, &c.

Take a penny-worth of lintseed oil, and as much of gold litharage; a halfpenny worth of umber, and as much of ceruse. Grind all together on marble; and, with a little hair pencil, dipped into the said colour, draw whatever you will on the above-mentioned wares. As soon as dry, lay your gold on it with cotton, which you pass along your cheek before taking the gold with it. And as soon as this is persectly dry, burnish it.

XLV. Matt gold in oil.

Take yellow ocher, a little umber, white and black lead, which grind all together with greafy oil, and use it when necessary.

XLVI. To dye any metal, or frone, gold colour, without gold.

Grind together into a subtile powder ammoniac salt, white vitriol, saltpetre, and verdigrise. Cover the metal, or stone you want to dye, all over with this powder. Set it, thus covered, on the fire, and let it be there a full hour; then, taking it out, plunge it in chamber lye.

XLVII. To aubiten copper.

Take one ounce of zinc, one drach and a third part of it of sublimed mercury. Grind all into powder, then rub with it what you want to whiten.

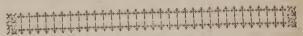
XLVIII. To auditen filver avithout the affiftance of fire.

Take Mons-martirum's talo, which you calcine well
in an oven till it can be pulverifed. Sift it very fine.
Then dipping a piece of cloth or stuff in it, rub the filver
with it.

XLIX. To

XLIX. To whiten iron like filver.

Mix ammoniac falt's powder, and quick lime, in cold water. Then make your iron red-hot feveral times, and, each time, plunge it in that diffolution. It will turn as white as filver.



# CHAP. VII.

SECRETS relative to the art of DYING WOODS. BONES, &c.

I. The composition for red.

HOP Brafil wood very fine, and boil it in common water, till it has acquired an agreeable co-

lour, then strain it through a cloth.

2. Give your wood first a coat of yellow, made of faffron, diluted in water. Then, the wood being thus previously tinged with a pale vellow, and dried, give afterwards feveral coats of the Brasil wood-water, till the hue pleases you.

3. When the last coat is dry, burnish it with the burnisher, and lay another coat of drying varnish with the palm of your hand; and you will have a red oran-

ged very agreeable.

4 If you want a deeper red, or rather a darker, boil the Brasil wood in a water impregnated with a diffolution of alum, or quick lime.

II. Another red.

Soak the chopped Brasil wood in oil of tartar; and, with it rub your wood, proceeding for the rest as above directed.

III. Another way.

Pound orchanetta into powder; mix it with oil of nut; make it luke-warm, and rub your wood with it. The rest as above.

IV. To die wood in a purplish colour.

Soak Dutch turnsol in water; add a tincture of Brafil wood made in lime water, and you will obtain a purple, with which you may dye your wood, and then burnish and varnish as usual.

V. Ablue purple.

Take that fort of German turnfol which painters use to paint with fize. Diffolve it in water, and strain it through a linen cloth. Give a coat of this dye to the wood; and, if the hue seems to you to be too strong, give it another coat of a paler dye, which is done by adding clear water to a part of the other. When dry, burnish it as usual.

VI. Another.

Four ounces of Brafil, and half a pound of India, weods, boiled together in two quarts of water, with one ounce of common alum.

VII. A blue for wood.

Slack lime in water, and decant it out of the ground. In three pints of this water diffolve four ounces of turnfol, and boil it one hour. Then give feveral coats of it to your wood.

VIII. A green.

Grind Spanish verdigrise into a subtile powder with strong vinegar. Add, and mix well with this, two ounces of green vitriol. Boil all of it a quarter of an hour in two quarts of water, and put your wood a soaking in it so long as you find the colour to your liking. For the rest, proceed as above.

1X. A yellow.

Diffolve turnfol in two quarts of water. Then grind fome indigo on marble with that water, and fet it in a veffel on the fire with weak fize to dilute it. When done, give a coat of this dye to your wood with a brush, and when dry, polish it with the burnisher.

X. Another yellow.

Boil in water fome grinded terra merita, and foak your wood in it afterwards.

XI. Another finer yellow.

Four ounces of French berries, boiled for about a quarter of an hour in a quart of water, with about the bulk of a filbert of roch-alum. Then foak the wood in it.

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XII. To

XII. To dye wood in a fine polished white.

Take the finest English white chalk, and grind it in fubtile powder on marble, then let it dry. Now take what quantity you please of it, and set it in a pipkin on the fire with a weak fized water, having great care not to let it turn brown. When it is tolerably hot, give first a coat of fize to your wood, and let it dry; then give one or two coats of the aforesaid white over it. These being dry also, polish with the rushes, and burnish with the burnisher.

XIII. To dye in polished black.

Grind lamp-black on marble with gum water. Put it next in a pipkin, and give a coat of this, with a brush, to your wood; then polish it when dry.

XIV. Another way.

Soak bits, of old rufty iron, fuch as nails, for example, in the best black ink. A few days after rub your wood with it, and when you shall see it well penetrated with this black, and dry, polish it with the burnisher.

XV. To imitate ebony.

Infuse gall-nuts in vinegar, wherein you shall have foaked rufty nails; then rub your wood with this; let it dry, polish and burnish.

XVI. Another way.

Chuse a good hard wood, and not veiny, such as pear, apple, or hawthron trees, and blacken them. When black, rub them with a bit of cloth; then, with a reed brush, made on purpose, dipped in melted wax, mixed in a pot with common black, rub your wood till it shines like ebony.

N. B. Before you perform this on your wood, it is proper to rub it smooth with the rushes, for then you

fucceed better in the imitation of the ebony.

XVII. Another way.

The holly is again a very fit fort of wood to take the dye of ebony. The method of dying it is this. Form it first into the shape you intend to give it, then put it in a hatter's copper to boil, where you leave it till it has acquired a perfect degree of blackness, and is pene-

penetrated sufficiently deep with it, which you know by leaving a little bit in a corner of the copper to cut and make the trial. If the black has got in as deep as a copper halfpenny is thick, take it out and dry it in the shade. Then take off the filth of the dye, and polish it as you would ebony, with rushes, charcoal dust, and oil of olive.

XVIII. Another ebony black.

1. Take India wood cut in small bits, and a little alum; put them in water, and boil till the water looks purple. Give several coats of this colour on the wood, till it looks purple likewife.

2. Next to this, boil verdigrise in vinegar to the diminution of a third, and give new coats of this over

the others on the wood till it looks black.

XIX. Another way.

Take mulberry-tree wood, work and shape it as it is to stay. Then soak it for three days in alum water. exposed to the sun, or before the fire. Boil it after this in olive water, in which you may put the bulk of a nut of Roman vitriol, and the same quantity of brimstone. When the wood looks of a fine black, take it out, and lay it again in alum-water. When it shall have remained there a descretionary time, take it out. let it dry, and polish as usual.

XX. A fine black, easily made.

Take of good ink whatever quantity you like; put it in a stone pan, new, and well nealed, then set it in the fun to exficcate it into a cake. When dry, take and scrape it out from the pan with a knife, and grind it into an impalpable powder on marble. This powder, diluted with varnish, will produce a fine black.

XXI. To dye wood filver fashion.

Pound tinglass, in a mortar, and reduce it into powder. Add water to it by degrees, with which you continue to pound it, till it comes into a liquid, like colour for painting. Put it in a clean pipkin, with as big as a nutmeg of fize, and fet it on the fire to warm. Brush your wood with this liquor; and, when it is dry, burnish it.

XXII. To dye in gold, filver, or copper.

Pound very fine, in a mortar, fome roch crystal with clear water. Set it to warm in a new pipkin with a little fize, and give a coat of it on your wood with a brush. When dry, rub a piece of gold, silver, or copper, on the wood thus prepared, and it will assume the colour of such of these metals as you will have rubbed it with. After this is done, burnish it as usual.

XXIII. To give a piece of nut, or pear tree, what undulations one likes.

Slack fome quick lime in chamber-lye. Then wish a brush dipped in it form your undulations on the wood according to your fancy. And, when dry, rub it well with a rind of pork.

XXIV. To immitate the root of nut-tree.

Give feven or eight coats of fize to your wood, till it remains shiny. Then, before your fize is quite dry, strike here and there a confused quantity of spots with bistre grinded with common water. When dry, varnish it with the Chinese varnish.

XXV. To give a fine colour to the cherry-tree wood.

Take one ounce of orchanetta; cut it in two or three bits, and put it to foak for forty-eight hours in three ounces of good oil of olive. Then, with this oil anoint your cherry-tree wood after it is worked and shaped as

you intend it: it will give it a fine luftre.

XXVI. To marble wood.

1. Give it a coat of black diluted in varnish. Repeat it one, two, three, or as many times as you think pro-

per; then polish it as usual.

2. Dilute next, some white in a white varnish made with white gum, or shell-lack, and white sandarac. Lay this white on the black ground tracing with it what strokes and oddities you like. When dry, give a light rub with rushes, then wipe it, and give a last coat of fine transparent white varnish, in order to preserve the brightness of the white. Let this dry at leisure, then polish it.

XXVII. To immitate white marble.

Have the finest white marble you can find; break and calcine it in the fire. Grind it as fine as you possibly can, on a white marble stone, and dilute it with fize. Lay two coats of this on your wood, which, when dry, you polish as usual, and varnish as before directed.

XXVIII. To imitate black marble.

Burn some lamp-black in a shovel, red hot, then grind it with brandy. For the bigness of an egg of black, put the size of a pea of lead in drops, as much of tallow, and the same quantity of soap. Grind and mix well all this together; then dilute it with a very weak size water. Give sour coats of this; and, when dry, polish as usual.

XXIX. To marble, and jasper.

The wood being previously whitened with two coats of whitening, diluted in leather fize, then polished as directed Chap. v. art. 1. n. 2. put on with a pencil what other colours you like, then burnish it with the burnishing tooth, which, in doing it, you rub now and then on a piece of white soap.

You must only take notice, that if you have employed lake, cinabar, orpine, and some other colours, they will easily receive the burnishing; but as for the verdigrise and azure powder, you will find more difficulty

to succeed in doing it.

As for the jasper, you must only give two or three coats of different colours fancifully drawn and intermixed, chusing always a green or a yellow for the ground as the most proper. And, when with a brush of hog's bristles, you shall have laid and variegated all your colours, let the whole dry; polish it with rushes, and give the last coat of white varnish.

XXX. For the aventurine.

Prepare a brown ground colour, with a mixture of vermilion, umber, and lamp-black, and give a first coat of this on your wood. According as you should want this ground darker or redder, you may add or diminish the quantity of some of these colours. When these coats are dry, polish them, then heat them, and give another

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of a fine and clear varnish, in which you have mixed the aventurine powder sifted through a silk sieve. And after the proper time for drying, you may polish as usual.

XXXI. A counter-faction of coral.

1. Reduce goat's horns into a subile powder. Put it in a clear lye made of lime and pearl ashes. Let it there rest for a fortnight. When reduced into a palp, add cinnabar in powder, or dragon's blood in tears, pulverised very sine. in what quantity you may judge necessary to give the quantity of matter you have got a fine and perfect coral hue.

2. Next boil this composition till it comes very thick; then take it off from the fire and mould it in moulds shaped in forms of coral. Or else cast it again in what other forts of moulds you like, to make figures of it, and other forts of work, which will produce a fine

effect.

Objervation. This secret has been worth immense fums of money to him who found it out. The Turks, to whom these forts of works were carried, paid them magnificently. But this branch of trade was soon put to an end by the cheats which were practised with the merchants of Tunis and Algiers, who used to buy those curiosities.

XXXII. To soften amber, otherwise karabe.

Melt fine white and pure wax in a glass vessel. When melted, put your amber in it, and leave it there till you find it soft to your satisfaction. Then take it out, and give it what form and shape you like. If afterwards you put it in a dry place in the shade, it will become as hard as you can wish to have it.

XXXIII. To take the impression of any seal.

r. Take half a pound of Mercury: the same quantity of chrystaline vitriol; as much verdigrise. Pulverise well these two last ingredients, and put them along with the first in a new iron pan, with smith's sorge water. Stir all well with a wooden spatula, till the mercury is perfectly incorporated with the powders. Then wash that paste with cold water, and change it till it remains quite clear as when you put it in. Put the lump in the air, it will harden, and you may keep it for use.

2. When you want to take the impression of a seal with it, take it and place it over the fire on an iron plate. When there appears on it some drops like pearls, then it is hot enough; take it off and knead it in your hands with your fiagers, it will become pliable like wax; smoothen one side of it with the flat side of a knife blade, and apply it on the seal, pressing it all round and in the middle to make it take the impression. When done, lift it up, and set it in the air, where it will come again as hard as metal, and will serve you to seal the same letter, after having opened it, with its own coat of arms or cypher, &c. as the original seal itself, without any probability of discovering it, should even the real one be laid on it.

### XXXIV. Another way.

Heat some mercury in a crucible, and filver filings in another, in the proportion of two parts of mercury to one of filver. As foon as the mercury begins to move, pour it on the filver filings. Let this cool, and then put it in a glass mortar. Pound it well with a pestle of the same, and add a little water in which you shall have dissolved some verdigrise. Stir this, for three days, five or fix times a day. At the end of the term decant out the verdigrise water, and replace it with good vinegar, with which you pound it again in the fame mortar, as before, a couple of hours, changing vinegar as foon as it blackens. Pound it again, two other hours, with chamber lye inflead of vinegar, changing it the fame, during that time, as you did the vinegar .- Then take that matter, lay it on a wash-leather skin, which you bring up all round it, and tie it above with a string. Press the lump well in that skin, so as to separate and fqueeze out all the superfluous mercury which passes through the leather. And, when none comes out any longer, open the skin, take the lump in your hand, and knead it with your fingers, and smoothen one side of it to take the impression you like, proceeding, for the rest, as above directed. It hardens in the air, and foftens with the heat of the hand, affifted with the working of the fingers, as you would do a piece of wax. XXXV. To

XXXV. To get birds with white feathers.

Make a mixture of semper-vivum-majus's juice, and olive oil, and rub with it the eggs on which the hen is fetting. All the birds which shall come from those eggs will be white feathered.

XXXVI. To Soften ivory.

In three ounces of spirit of nitre, and fifteen of white wine, or even of mere spring-water, mixed together, put your ivory a-foaking. And, in three or four days, it will be so soft as to obey under the fingers:

XXXVII. To dye ivory, thus softened.

1. Dissolve, in spirit of wine, such colours as you want to dye your ivory with. And when the spirit of wine shall be sufficiently tinged with the colour you have put in, plunge your ivory in it, and leave it there till it is sufficiently penetrated with it, and dyed inwardly. Then give that ivory what form you will.

2. To harden it afterwards, wrap it up in a sheet of white paper, and cover it with decrepitated common falt, and the driest you can make it to be; in which situa-

tion you shall leave it only twenty-four hours.

XXXVIII. Another way to foften ivory.

Cut a large root of mandrake into small bits, and infuse first, then boil it, in water. Put your ivory in this boiling liquor, and boil it too, till it is as foft as wax.

XXXIX. Another way.

1. Take one pound of black alicant kaly, and three quarters of a pound of quick lime, which you put into boiling water, and let it rest for three days. If, after that term, the liquor is reddish, it is strong enough; if not, you must add again of the above ingredients, till it acquires that degree.

2. Then putting a foaking in this lye any bone, or ivory, for a fortnight, they will become as fost as

wax.

3. To harden them afterwards, dissolve an equal quantity of alum and scuttle fish-bones powder, in water, which you boil to a pellicula; foak your bones or ivory in this for about one hour only; then take them out, and XL. To put them in a cellar for a few days.

XL. To whiten ivory, which has been spoiled.

Take roch-alum, which you dissolve in water, in a fussion t quantity, to render the water all milky with it. Boil this liquor into a bubble, and soak your ivory in it for about one hour, then rub it over with a little hair brush. When done, wrap it in a wet piece of linen to dry it leisurely and gradually, otherwise it would certainly split.

XLI. Another way.

Take a little black foap, and lay it on the piece of ivory. Present it to the fire, and when it has bubbled a little while, wipe it off.

XLII. To whiten green ivory; and whiten again that which has turned of a brown yellow.

1. Slack fome lime into water, put your ivory in that water, after decanted from the ground, and boil it till

it looks quite white.

2. To polish it asterwards, set it on the turner's wheel, and after having worked it, take rushes and pumice-stones subtile powder with water, and rub it till it looks all over perfectly smooth. Next to that, heat it, by turning it against a piece of linen, or sheep's-skin leather, and, when hot, rub it over with a little whitening diluted in oil of olive, continuing turning as before; then with a little dry whitening alone, and finally with a piece of soft white rag. When all this is performed as directed, the ivory will look as white as snow.

XLIII. To whiten bones.

Put a handful of bran and quick-lime together, in a new pipkin, with a fufficient quantity of water, and boil it. In this put the bones, and boil them also till perfectly freed from greafy particles.

XLIV. To petrify wood, &c.

Take equal quantities of gem-falt, roch-alum, white vinegar, calx, and pebbles powder. Mix all these ingredients together, there will happen an ebullition. If, after it is over, you throw in this liquor any porous matter, and leave it there a foaking for three, four, or five days, they will positively turn into petrifications.

XLV. To.

XLV. To immitate tortois-shell with horn.

Take one ounce of gold litharage, and half an ounce of quicklime. Grind well all together, and mix it to the confistence of pap, with a sufficient quantity of chamber-lye. Put of this on the horn; and, three or four hours afterwards it will be perfectly marked.

XLVI. A preparation for the tortois-shell. Make a mixture, as above, of quick lime, orpine, pearl ashes, and aquafortis. Mix well all together, and put your horn, or tortois-shell, a-soaking in it.

Grind well a discretionable quantity of verdigrife, which you put with vinegar in a copper vessel, and the bones in it. Cover this, and lute it so well that no air can come at the contents. Put it in not horse dung, and leave it there for a fortnight, after which time take your bones out; they will be coloured of a fine green,

which will never rub off.

XLVIII. Another way.

1. Put some verdigrise, well grinded, in goat's milk, and leave it till the milk becomes very green. Then put all together in a copper vessel along with the bones; cover and lute it well, then place it in hot horse dung for ten days, after which time you may take the bones out persectly well coloured.

2. If you will have them more so, boil them in oil of nut; and the longer they boil in it, the more they will

heighten in colour.

3. To polish them, you must use elder's marrow: and justice them with oil of nut.

XLIX. To dye bones, and mould them in all manner of shapes.

1. Boil together twelve pounds of quick lime, and one of calcined roch-alum, in water, to the reduction of one third of the water you shall have put in. Add, then, two more pounds of quick lime, and boil it again till it can carry an egg, without its sinking to the bottom. Now let it cool and rest, then filter it.

2. Take twelve pounds of that liquor; put in half a pound of rasped Brasil wood, and sour ounces of scarlet.

flocks;

flocks : boil all about five minutes on a flow fire, then decant the clearest part of it, and put it by. Put on the fæces of brafil and scarle tabout four pounds of the first water; boil it the same length of time as the other, and decant likewise the clearest part of it on the other. Repeat this operation, till the new added water draws

no more colour from the faces.

3 Now rasp any quantity of bones, and boil them, when rasped, a reasonable time in clear lime water. Then take them out. Put them in a matrass; and, over them, pour some of the tinged water, so as to foak them only with it. Place the matrass on a mild. fand bath, and evaporate the liquor. Add some more liquor, and evaporate it again the same, continuing toadd and evaporate the tinged liquor, till the rasped

bones are all turned into a foft paste.

4. Take this paste, and mould it as you like, in tin or other moulds, to make whatever thing or figure you want. Set it in the mould for a day or two, till it has acquired the shape you would have it; then, to harden it, boil it in a water of alum and faltpetre first, and afterwards in oil of nut. Nothing more surprising, and at the same time more agreeable, than these figures, which look incontestibly to be made of bones, without conceiving how they can be made fuch, out of that matter, and in one folid piece.

L. To dye bones in black.

Take fix ounces of litharage, and the same quantity of quick lime. Boil all in common water, along with the bones. Keep always stirring, till the water begins to boil. Then take it out, and never cease flirring till the water is cold again; by that time the bones will be dyed black.

LI. To soften bones.

Take equal parts of Roman vitriol and common falt. Distil the spirits out of this by the alembic. or rather, by the retort. If in the water you get from the distillation, you put the bones a-foaking, they will become as foft as wax.

LII. To dye bones in green. Pound well together, in a quart of strong vinegar, three ounces of verdigrife, as much of brass filings, and a handful of rue. When done, put all in a glass vessel, along with the bones you want to dye, and stop it well. Carry this into a cold cellar, wherein leaving it for a fortnight, or even more, the bones shall be dyed green.

LIII. A falt for hardening foft bones.

Take equal quantities of ammoniac, common decrepitated and gem falts, as well as of plumeum, faccarinum, rock and shell alums. Pulverife, and mix all together; then put it in a glass vessel well stopped, which bury in hot horse dung, that the matter should meltinto water. Congeal it on warm embers. Then make it return into a delequium again, by means of the horse dung, as before. When thus liquished for the second time, it is sit for use. Keep it, and when you want to harden and consolidate any thing, smear it over with it.

LIV. To make figures, or wases, with egg-shells.

1. Put in a crucible any quantity of egg shells, and place it in a potters surnace, for two days, that they may there be perfectly calcined; then grind them dry into a subtile powder.

2. Next, with gum arabick-water, and whites of eggs beaten together, make a liquor, with which you are to knead that powder, and make a paste or dough of it.

3. With that dough, to which you give the confishence of potters clay, make and form whatever figure or vale you like, and fet them in the fun to dry.

LV. To dye bones and ivory of a fine red,

1. Boil scarlet flocks in clear water, affisted with a certain quantity of pearl ashes, to draw the colour the better; then clarify it with a little roch-alum, and strain this tincture through a piece of linen.

2. To dye, afterwards, any bones or ivory in red, you must rub them first with aquasortis, and then im-

mediately with this tincture.

LVI. To make a paste in imitation of black marble.

Dissolve two ounces of spalt, on a gentle fire, in a
glazed pipkin. When in perfect fusion, add a third
part

part of karabe, which you must keep there ready melted for it, and stir all well together. When both shall be well mixed and united, take the pipkin off from the fire, and throw the contents, boiling hot as they are, into a mould of a fine polish in the inside. Then, when cold and dry, take the piece off from the mould, and you will find that nothing can imitate so well black marble as this deceptive composition, except black marble itself.

LVII. A receipt to dye marble, or alabaster, in blue or purple.

1. Pound together, in a marble mortar, parsnips and purple lilies, with a sufficient quantity of white-wine vinegar. Proportion the quantity of parsnips and lilies to each other, according to the hue you wish to give the liquor. If you cannot get one of these two juices, make use of that you can get; and to every one pound of liquor, mixed and prepared, put one ounce of alum.

2. In this dye, put now your pieces of marble, or alabaster, and boil them, supposing that they are not too considerable to go into the vessel with the liquor. And if they be, you must heat one part of it as much as you possibly can, then dye it with the liquor quite boiling hot, and thus proceed from place to place, till you have dyed it all over.

LVIII. To bronze wooden, plaster, ivory, or other figures, so that the bronze may stand water for ever.

1. Grind English brown red, as fine as possible with nut oil. With this, paint all over the figure intended to

be bronzed, and let it dry.

2. Have next some powder of German gold in a shell; and, in another, some of the varnish described in the following article. Dip a pencil in the varnish, and then in the gold, and give as smooth and equal a coat of this to your figure as you can.

3. For faving expence, you may instead of the German gold, take some fine bronze, which is a good deal

cheaper.

LIX. The varnish fit for bronzing.

Pound, into subtile powder, one ounce of the finest shell-lac. Put it in a glass matrass of three half pints size. Pour upon it half-a-pint of the best French spirit

of.

of wine. Stop it well, and place it in the cool for four days, that the lac may have time to dissolve at leisure. During that time, neglect not to shake the matrass, as if you were washing it, four or five times a-day, for fear the lac should make a glutinous lump, and stick to the bottom of the matrass. Should your lac, at the end of those four days, be yet undissolved, set it on a gentle sand-bath, to help sinishing it; and, when dissolved to perfection, the varnish it done.

Note. When you pour the spirit of wine on the lac in the matrass, observe to do it gently, and little at a time, in order it may penetrate the powder the better. Observe also to stop pouring by intervals, at different times, and take the matrass and shake it as it were for rinsing, in order to mix all well, thus continuing to do till you have introduced all the spirit of wine into the lac.

I.X. A water to dye bones and wood.

1. Put the strongest white-wine vinegar in an earthen pan, in which set to insuse, for seven days, copper silings, Roman vitriol, roch-alum, and verdigrise.

2. In this liquor, put a-boiling what you want to dye,

and it will take the colour perfectly.

3. If you want a red dye instead of verdigrise, put some red; if yellow, put yellow, and so forth, according to the various colour you may require, with a discretionable quantity of roch-alum for either.

LXI. To dye bones and ivory an emerald green.

Put in aquafortis as much flos ænei as it can dissolve; and in that water put a-soaking, for twelve hours only, whatever you want to dye, and they will take the colour to perfection in that space of time.

LXII. To dye bones any colour.

Boilthe bones first for a good while; then in alye of quick lime mixed with chamber lye, put either verdigrise or red or blue chalk, or any other ingredient sit to procure the colour, you want to give to the bones. Lay the bones in this liquor, and boil them, they will be perfectly dyed.

LXIII. To whiten alabaster and white marble.

Infuse, for twelve hours, some subtile pumice stone's powder in verjuice; then, with a cloth, or a sponge, wet

wet your marble with the liquor, and it will become perfectly white.

LXIV. To blacken bones.

Mix charcoal dust with wood-ashes and water; rub the bone with this wash, then with ink; and, when dry, polish it.

LXV. Another way to dye woods and bones red.

Infuse for twenty-four hours your wood in red-wine vinegar. Then add to this vinegar a sufficient quantity of Brasil wood and roch-alum, both in powder, and boil all altogether, till you see the wood, or bones, have acquired the degree of colour you wish to have them.

LXVI. The same in black.

After the twenty-four hours infusion as above, add to the vinegar a sufficient quantity of vitriol, orpine, pomegranates' rinds, and gall-nuts, all in powder, and boil as before directed.

LIXVII. For the green.

Supply for the above ingredients, two parts of rochalum, and one of alumen plumeum, with which you boil the wood or bones to the reduction of two thirds, or thereabouts; then put them a-foaking in a lye of foap and verdigrife, in a sufficient quantity, till they are perfectly green.

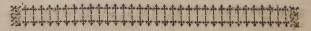
LXVIII. To dye wood vermilion colour.

Smoothen and rub well the wood first; then give it four or five coats of vermilion subtilely pulverised, and diluted with lime and curd-cheese water.—When dry, polish it over again with rushes and oil of spike; then for the last, give it four or five coats of varnish, made with karabe and oil of spike, and let it dry.

LXIX. To foften horn, so that you may cast it in a mould as melted lead.

Make a strong lye with equal quantities of pearl ashes and quick lime. Rasp your horns, and put these raspings in that lye. They will soon turn into a pap. Then put in this pap whatever colour you like, and cast it in whatever mould you chuse.—To dry and harden these sigures afterwards follow the directions prescribed in Art. xlix. at the bottom, and in liii.

CHAP. VIII.



#### H A. P. VIII.

SECRETS relative to the ART of CASTING in Moulns.

I. To cast a figure in bronze.

1. O cast a figure, or any other piece in bronze, you must, first, make a pattern with a proper clay. That clay ought to be mixed with fand, to prevent its

cracking, when it comes to dry.

2. When the pattern is completed and the sculptor is pleased with his work, you mould it with plaister while it is fill damp, because in drying, the parts of the pattern shrink, and lose their fullness. To that effect you. begin by the bottom part of the figure, which you cover with feveral pieces, and by rows; as for example, let us suppose the first row from the feet to the knees; the second from the knees to the beginning of the belly; the third from the beginning of the belly up to the pit of the flomach, from thence to the shoulders, on which you lay the last row, which is to contain the head-Observe, however, that those divisions of rows admit of no particular rule, and ought to be intirely determined by, and adapted to, the fize of the figure. For when the pieces are made too confiderable, the plaister works too much, and fatigues itself, which is detrimental to its taking a true and precise impression of all the turns and shapes of the figure. So that at any rate, it is always preferable to make the pieces of the mould smaller than larger.

3. You must observe, that if the figure you are moulding have got any draperies, or other forts of ornaments about it, which require a good deal of trouble and nicety, you cannot help making a great many small parts and subdivisions in your mould, in order to enable you to firip them off the figure afterwards with more facility. In which circumstance, when all these small parts are made, and garnished with little rings to assist in pulling them off more eafily, you cover them all over with larger pieces, which containing feveral of the little ones, are called cases, and in French chapes.

4. When the mould is thus made and completed, you let it rest till it is persectly dry. Then, before using it, they who are curious in their work, do not content themselves with imbibing it inwardly with oil, but they even make it drink as much wax as it can soak, by warming those separate pieces, and putting wax in them to melt.—The motive, in doing this, is to render the wax-work, which is to be cast in it siner and more persect. For if you imbibe the mould with oil only, the wax figure cast in such a mould always comes out a little rough and like flour, because the wax draws always the supersicy of the plaister, and in reverse, the plaister draws also the supersicy of the wax, which produces a great defect in the figure, and is a great obstacle to its coming out from the mould with that neatness it

otherwise should.

5. The mould being therefore thus imbibed with wax, if you want it for a bronze figure, you affemble all the small parts of it each in their cases, and with a brush give them a coat of oil. Then, with another brush, give them another coat also of wax, prepared as follows .- Six pounds of wax, half-a-pound of hog's lard, and one pound of Burgundy pitch .- This preparation of the wax, however, must be regulated according to the country and the season. For in the heat of summer, or hot climes, such as Spain, Italy, and France, wax may be used alone, as it keeps naturally soft, and the other drugs above-mentioned, are added to it only to render it more tractable. Of this wax; therefore, whether prepared or natural, you lay another coat, as we said, in the hollow of the mould, to the thickness of a fixpenny piece. Then, with wax made in flat cakes, of the thickness of a quarter of an inch, more or less, according to that you are willing to give your metal, you fill all the hollow parts of the mould in pressing hard this fort of wax in them with your fingers. When thus filled, you have an iron grate, larger by three or four inches every way than the plinth or basis of the figure. On the middle of that grate you erect one or more iron , bars, contoured agreeable to the latitude and fituation of the figure, and bored, from space to space, with holes to pass other iron rods of the size and length necessary to support the core (in French ame or neyau) of what you want to cast.

6. Formerly they used to make their cores with potter's clay mixed with hair and horse-dung well beaten together. With this compost, they formed a figure like the pattern; and, when they had well supported it with iron bars, length and cross-ways, according to its position and attitude, they scraped it, that is to say, they diminished, and took off from its bigness as much as they wanted to give to their metal. When that core was dry, they took the wax with which they had filled the hollow parts of their mould, and covered it with them. This method is even practifed now by some founders, especially for great bronze figures, because earth refists better the power of that red-hot melted metal, than plaister can; and this they reserve only for fmall figures, and those which are cast in gold or filver. However, when plaister is well beaten and mixed with brick dust also well beaten and sifted fine, it stands pretty well too. We shall therefore proceed on the method of casting on plaister cores.

7. You take then the first, or bottom rows, of the mould, filled by the last wax in cakes, as mentioned before, and assemble them on the iron grate round the principal iron bar, which is to support the core when made. When they are joined together, you give them a tye round very hard with cords, lest they should vary

from their position when you form the core.

8. To form this, as foon as the first set which completes the bottom row of the separate pieces of the mould is fixed, you pour plaister, diluted very clear, and mixed, as we said, with brick-dust, with which you fill up that bottom part of the hollow. Then, on this first bottom row of the mould, you place the second in the same manner as the first; then fill it likewise with your prepared plaister. Thus you continue to erect your mould from row to row, till you come to the last, and fill it as you go, with plaister, which is called form-

ing thecore. If the figure require it, you pass across the core some iron rods through the holes perforated for that purpose in the perpendicular bars, in order to support the core the better, and give it more strength and power to refift the effort of the metal when it

comes in fusion upon it.

9. When all the pieces of the mould have been thus erected one upon another, and filled with plaister, you must stop a certain time to let it take a confisence, then proceed to take off the cases and all the smaller parts of the mould contained in each of them, row by row, and one by one, in the same manner as you proceeded to erect them, with this difference, that in erecting them you begin at the bottom, and that in taking them off. you begun at the top; which, when done, leaves the figure to appear all in wax, covering the core, which is contained in the infide of it.

10. You are then to proceed to the repairing of the figure, and finish it after the original. The sculptor, in that case, has even an opportunity of perfecting much some of the parts, in adding or taking off according as he thinks proper, to give more grace and expression to certain strokes, muscles, or features only; as for the disposition of the limbs, and their attitude, he can no

longer mend or alter them.

11. The figure thus well prepared, you are to place what is called the pouring and the went holes. gouring boles are wax-pipes of the bigness of an inch diameter for such figures as are of a natural size; for they are to be proportioned not only to the fize of the figure, but even to that of the parts of that figure whereon they are placed. The went-boles are wax-pipes likewife, but of much lesser size. Those pipes are cast in plaister moulds of what length you please, then cut to that of four or five inches, or thereabouts. They are cast hollow, to the intent of rendering them lighter, otherwise they might as well be cast solid. Those which ferve for pouring, are placed in a straight perpendicular line, one above another, at fix inches asunder, and sometimes nearer, when there are draperies, and much matter is used. 12. When

12. When the various pipes are placed and foldered against the figure, with wax, so that the end which is free should be upwards, and as much perpendicular to the figure as possible, you place another pipe of the same size quite perpendicular, which is to be fixed against every one of the ends of the others. All these pipes, both large and small, serve for the pouring of the matter, and casting of the figure. You are to place three or four of them generally round the figure, which is de-

termined by its fize, bulk, and disposition.

13. But at the same time you are placing the pouring-holes, you must not neglect placing also those which are to ferve for the vent: These last are to be placed in the same line as and with the others, at the distance of four inches only from them, and fixed likewise by one end to the figure, and by the other to another long and perpendicular pipe, like those for pouring. Now, as it is necessary that all the wax, when you come to melt it, should, as we shall mention in its place, come out entirely from the mould, you must not fail to place those forts of vent-pipes on all the rifing and distant parts from the mean bulk of the figure, fuch as the arms, fingers, draperies, &c. &c. from which the wax' must be got out with facility, either by means of particular vent-holes, so formed as to descend to the bottom of the figure, or by means of those large ones placed perpendicularly along-fide of it. - Observe, always, to make the pouringholes which come to the face and hands the smallest of any, that they may not affect too much the features and likeness, if any be intended, of those parts; and that you may the more eafily repair those places with the chilel, when they are finished.

14. After these various pipes have been thus carefully fixed all about the figure, you must so place them that two of the main perdendicular ones should join together at five or six inches higher, and above the upper part of it, and be terminated by a wax cup of sour inches deep, and as much diameter, under, and at the bottom part of which you solder them. This cup serves as a funnel to receive the metal, and introduces it into the pouring-holes, by means of its communication with

with them, to convey it afterwards into all the parts of the figure at once, and form it: Therefore, if there be four perpendicular ascending pipes, you make two fuch cups, to communicate the metal to these pipes.

15. As for the vent-holes, you let them free above the top of the figure, and higher than the pouring ones,

because they want no cups.

and garnified, with all its pouring and vent-holes, you prepare a composition of putty, and crucibles' powder, well grinded, and fifted very fine, which you dilute clear in a pan, like a colour for painting. With a brush take this composition, and cover all the figure, as well as the vent and pouring-pipes. This operation you repeat several times, observing carefully to fill up all the cracks and crevices which may happen in drying. When the wax is thus perfectly covered every where, you put with the same brush, another composition

thicker than the first, and of a stronger fort.

17. This composition is made of the same materials as the other, but with this addition, that you mix some free earth along with it, and horse-dung, quite clear from any straw. After having given fix or feven coats of this, you give another coat again, much thicker still, of a stuff composed of nothing but free earth and horse-dung, and this being dry, you give half-a-dozen more of the same, allowing time between each to dry. At last, you put with your hand, and no more with the brush, two other coats of this same last composition, of free earth and horse-dung, mixed in form of mortar, observing always that the one should be perfectly dry, before laying on the other; and that there should be no part of the figure, whether naked or draperies, but what is equally covered with every one of the different coats we have mentioned.

18. Next to this, you must have statiron bars turned and bent according to the disposition of the figure, which being fixed by means of hooks at the sides of the grate on which it stands, rise up as high as the pipes, and joining close to the mould, unite at top by means of a circle of iron which runs through all the hooks.

hooks, by which these bars are terminated. Then you furround again the figure with other iron bars, made in form of hoops, to prevent the others which go from top to bottom, and to which they are fixed by means of wires, from giving way; and, between every one of these bars, both perpendicular and horizontal, there must be no more than seven or eight inches distance allowed.

enabled thereby to support and contain the mould, you take a compost of free earth, horse-dung and hair mixed together, in consistence of mortar, and with this you cover the mould and the bars all over, without attending any more to the shape of the figure, so that there appears no more but a shapeless lump of clay, which

ought to be of about four or five inches thick.

dig a square pit sufficiently deep for the top of the mould to be somewhat lower than the superfice of the ground where the pit is dug, and sufficiently wide also to allow room of a foot and a half, free all round the mould, when descended into it.—At the bottom of that pit, you construct a surnace, on the top of which there is to be a strong iron grate supported by the arches and wall of the surnace, which is to be made of stone or bricks, as well as the four sides of the pit from top to bottom.

21. After the grate is placed on the furnace, you defeend the mould on it by means of engines. Then, under the pipes which are to serve for pouring, as well as vent, you place pans to receive the wax which is to run off. This done, you light a middling fire to heat the figure, and all the place where it stands, with so moderate a heat, that the wax may melt without boiling, and come entirely out from the mould, without there remaining any part of it; which would not be the case if the heat be so great as to make it boil, for then it would stick to the mould, and cause defects in the sigure, when you come to run the metal.—When, therefore, you judge that all the wax is out, which you may know by weighing that you employed, and weighing

ing it again after it is in the pans, you take these off, and stop the pipes, through which it came out, with clay. Then fill all the empty parts of the pit round the sigure with bricks, which you throw in gently, but without order; and, when it is come up to the top, make a good brisk fire in the surnace. As the stame is interrupted by these bricks, it cannot ascend with violence, nor hurt the mould, and they only communicate their heat in going through all those bricks, which become so hot, that they and the mould are at last both red hot.

22. Twenty-four hours after the fire has been lighted, when you fee that the bricks and the mould are equally red hot from top to bottom, you let the fire go out, and the mould cool, by taking all the bricks off. When there is no more any heat at all, you throw fome earth in the pit, to fill the place which had been occupied with the bricks; and, in proportion as you throw it in you tread it with your feet, and press it against the mould.

23. In order to melt the metal, you construct, just by the pit where the mould is, a furnace, the lower part of which ought to be higher by two or three inches than the top of the said pit, in order to obtain a sufficient declivity from it to the pit for the running of the metal. Its construction must be after the form of an oven, with good bricks and free earth, and supported by good and Arong iron hoops. There is a border raised all round, fo as to make it capable to contain all the metal which is intended to be melted in it. On the fide which looks towards the pit, there is an opening, which is stopped during the melting of the metal, and from that opening comes an earthen funnel practifed, which goes to a bason of good free earth placed over the mould, and the mi dle of which corresponds and communicates to those cups we have mentioned before (No. 14). This bafon is called by the workmen escheno. And in order to prevent the metal from running into these cups before the whole which is in the furnace is run into the eschena, there are men on purpose who hold a long iron rod terminated

minated by one end in the form of these cups, and stop them.

24. When the metal is melted, you unflop the opening of the furnace in which it is contained; this runs into the efcheno, and as foon as it is arrived, the men take off the rod with which they flopped the cups, and the mould being inflantly filled all over, the figure is

formed in one moment.

let it stay in that situation for three or four days, then, at leisure, you take off the earth which had been thrown all round it, which helps the mould to become entirely cold. As soon as you are sure there is no more heat, you break the mould, and the metal sigure appears surrounded with rods of the same metal, starting out from it, occasioned by the vent and pouring-holes, or pipes, through which the metal was introduced, and which remained filled with it. These you must saw off, in order to unburden the sigure of so much, and get it out of the pit more easily. Then you clean and scower with water and grinding-stone in powder, and pieces of deal or other fort of soft wood, and you search in all the hollow places of the draperies and other parts.

26. When the figures are small, they are generally washed with aquafortis; and, when it has operated, you may wash them again with common water. When they are thus well cleansed, you repair, finish, and fault those which require to be treated more highly than others; for the large ones are seldom searched so minutely.

27. After they have been as much finished as they are intended to be, you may give them, if you like, a colour, as some do, with oil and blood-stone. Or, as some others practise it, you may make them turn green by means of vinegar. But without all that trouble, the bronze will in time take a natural varnish of itself, and becomes of a blackish hue.

II. How to gild such forts of figures.

1. They may be gilt two different wavs; either with gold in shells, or with gold in leaves. The first method is the handsomest, and at the same time the most lasting, it being always used for small sized works. To apply

it, you make a mixture of one part of the best gold, and seven of mercury, which founders call silver in that fort of process. When these are incorporated together, you then heat the sigure, and rub it with the composition, which whitens it, and heating it again over the fire the mercury exhales, and the sigure remains gilt.

2. As for the other method it is only for large fized works, and them on which one is not willing to make a great expence; you scrape the figure with small files, and other proper tools, to make it quick and clean, then you heat and lay on a gold leaf, repeating this four

times.

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III. Of the choice and composition of metals.

Any metal whatever may be used for the casting of figures, though the general composition runs as follows.

1. For the fine bronze figures, the alloy is half brafs, half copper. The Egyptians who are faid to be the inventors of that art used to employ two thirds of brafs against one of copper.

2. Brass is made with copper and calamine. One hundred weight calamine renders one hundred per cent. Calamine is a stone from which a yellow dye is drawn.

It is to be found in France and at Liege.

3. Good copper ought to be beaten, not molten, when intended for statues. You must guard also against using putty, when in alloy with lead.

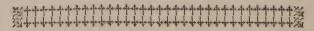
4. Copper may be forged either hot or cold. But brass breaks when cold, and suffers the hammer only

when hot.

5. There is a fort of metalic stone called Zinc, which comes from Egypt: it renders the copper of a much siner yellow than the calamine: but, as it is both dearer

and scarcer, they are not so ready to use it.

6. As for the composition for making of bells, it is twenty pounds weight pewter for each hundred of copper. And the artillery pieces take but ten pounds only of pewter to one hundred of the other. This last composition is not good for the casting of figures, as it is both too hard and too brittle.



### CHAP. IX.

## SECRETS relative to WINE.

I. To make a wine to have the taste and slavour of French muscat.

OU have only to put in the cask a little bag of elder flowers when the wine is just done pressing, and while it boils still. Then, a fortnight after; take out the bag.

II. To make the vin-doux.

When you cask the wine put in at the bottom of the cask half a pound of mustard seed, or a pound, if the cask be double the common size.

III. To make vin-bourru, of an excellent tafte.

Take two quarts of wheat, which boil in two quarts of water till it is perfectly bursted. Stir it well, then strain it through a fine cloth, squeezing a little the whole to get the creamy part out. Put two quarts of this liquor in a hogshead of white wine, while it is still aboiling or in fermentation, with the addition of a little bag of dried elder-slowers.

IV. To imitate a malvoifie.

Take of the best galangal cloves and ginger, each one drachm. Bruise them coarsely, and insuse for twenty-sour hours, with brandy, in a well closed vessel. Then take these drugs out, and having tied them in a linen bag, let them hang in the cask by the bung-hole. Three or four days after, your wine will taste as good and as strong as natural malvoise.

V. To change red wine into white, and white into red.

If you want to make red your white-wine, throw into the cask a bag of black vine-wood ashes; and to whiter the red wine, you must put a bag of white vine-wood ashes. Forty days after, take out the bag, shake the cask, and let it settle again; then you will see the effect.

VI. To prevent wine from fusting, otherwise tasting of the case, and to give it both a taste and slavour quite agreeable.

Stick a lemon with cloves as thick as it can hold; hang it by the bung-hele in a bag over the wine in the cask for three or four days, and stop it very carefully for fear of its turning dead, if it should get air.

VII. To make a vine produce a sweet wine.

One month before gathering the grapes, you must twist such branches as are loaded with them, so as to interrupt the circulation of the sap: then strip the leaves off intirely, that the sun may act with all its power on the grains, and, by dissipating their superfluous moisture, procure a sweetness to the liquor contained in them when they come to be pressed.

VIII. To make a fweet wine of a very agreeable flavour, and befides very wholesome.

Gather the grapes, and expose them for three whole days in the sun. On the fourth day at noon put them under the press, and receive the first drop which runs of itse f before pressing. When this virgin-drop shall have boiled, or fermented, put to every sifty quarts of it one ounce of Florentine-orrice in subtile powder. A sew days after take it out clear from its lye, and then bottle it.

IX. To clarify in two days new wine when muddy.

Take a discretionable quantity of fine and thin beech shavings, which put into a bag, and hang by the bung hole, in the cask. Two days after, take out the bag; and if from red you want to make it white, you may do it by putting in the cask a quart of very clear whey.

X. To make the wine keep mout or unfermented for

twelve months.

Take the first, or virgin wine, which runs of itself from the grapes before pressing; cask and stop it well, then smear the cask all over with tar, so that the water could not penetrate through any part of the wood into the wine. Plunge these casks into a pond deep enough to cover them intirely with water, and leave them there for forty days. After which term you may take them

out, and the wine contained in them will keep new for twelve months.

XI. To make a wine turn black.

Place in the cellar, wherein the wine is a fermenting, two pewter pots, and it will turn black.

XII. To clarify a wine which is turned.

Take clean roch-aium in powder, half a pound: fugar of roses, as much; honey whether kimmed or not eight pounds, and a quart of good wine. Mix all well, and put it in a cask of wine, stirring all as you pour it in. Take the bung off till the next day, then put it on again. Two or three days after this, it will be quite clear.

XIII. To correct a bad flavour in wine.

Put in a bag a handful of garden parsiey and let it hang by the bung hole in the cask, for one week at least. Then take it out.

XIV. To prevent wine from spoiling and turning.

Mix in the cask a tenth part of brandy, or half an ounce of oil of sulphur.

XV. To prevent thunder and lightning from burting wine. Put on the bung a handful of steel filings and another of falt, tied up in a bag.

XVI. To prevent wine from corrupting.

Put to infuse in the cask a handful of gentian root tied in a bag.

XVII. To restore a wine turned sour or sharp. Fill a bag with leek's seed, or of leaves and twisters of vine, and put either of them to insuse in the cask.

XVIII. To restore a wine corrupted and glairy.
Put in the wine cow's milk a little saltish; or else
the rinds and shells of almonds tied up in a bag: or again pine kernels.

XIX. To prevent wine from growing four, and turning in-

Hang by the bung hole, in the cask, a piece of bacon, of about one pound and a half, and replace the bung. Or else throw into the wine a little bagful of ashes of zirgin vine.

XX. To make a new wine taste as anold wine.

Take one ounce of melilot, and three of each of the following drugs, viz. liquorish, and celtick-nard, with two of hepatick aloes; grind, and mix all weil altogether, put it in a bag, and hang it in the wine.

XXI. To restore a wine turned.

Draw a pail full of it; or, take the same quantity of another good fort, which you boil, and throw quite boiling hot over that which is spoiled and stinking; then stop the cask quickly with its bung. A fortnight after tafte it, and you will find it as good as ever it was, or can be.

XXII. To restore a wine fusted, or tasting of the cask.

Draw that wine intirely out of its own lye, and put it in another cask over a good lye. Then, through the bung hole, hang up a bag with four ounces of laurel berries in powder, and a sufficient quantity of steel filings, at the bottom of the bag, to prevent it's fwimming on the top of the wine. And, in proportion as you draw a certain quantity of liquor, let down the bag.

XXIII. To prevent wine from pricking. Put in the cask half a pound of spirit of tartar. Or, elfe, when the wine is still new and mout, throw in two ounces of common alum for every hogshead.

XXIV. To make wine keep.

Extract the falt from the best vine branches; and of this put three ounces in every hogshead at Martinmas when the casks are burged up.

XXV. To clarify wine enfily. Put in the cask two quarts of boiling milk after having well skimmed it.

XXVI. To prevent wine from turning. Put in the cask one pound of hare's shot.

XXVII. To correct a musty taste in wine. Knead a dough of the best wheat-flour, and make it in the form of a rolling pin, or a short thick slick. Half bake it in the oven, and stick it all over with cloves. Replace it in the oven to finish baking it quite. Sufpend it in the cask over the wine without toucking it,

and let it remain there: Or else let it plunge in the wine, for a few days, and take it quite out afterwards. It will correct any bad flavour the wine might have acquired.

XXVIII. Another method.

Take very ripe medlars, and open them in four quarters, without parting them afunder. Then tye them with a thread, and fix them to the bung, fo that by putting it in again they may hang and foak in the wine. One month afterwards take them out, and they will carry offall the bad tafte of the wine.

XXIX. To correct a four, or bitter take in wine. Boil a quartern of barley in four quarts of water to the reduction of two. Strain what remains through a cloth, and pour it in the cask, stirring all together with a flick without touching the lye.

XXX. To restore a spoiled wine. Change the wine from its own lye, upon that of good wine. Pulverise three or four nutmegs, and as many

dry orange peels, and throw them in. Stop well the bung, and let it ferment one fortnight. After that term is over you will find it better than ever. This method has gone through many experiments.

XXXI. To sweeten a tart wine. Put in a hogshead of such a wine, a quarter of a pint of good wine vinegar faturated with litherage; and it will foon lofe its tartness.

XXXII. Another way.

Boil a quantity of honey in order to get all the waxy part out of it, and strain it through a double cloth. Of fuch a honey thus prepared put two quarts to half a hogshead of tart wine, and it will render it perfectly agreeable. If in the fummer, and there be any danger of its turning, throw in a stone of quick lime.

XXXIII. To prevent tartness in wine. Take, in the month of March, two basonfuls of riwer fand; and, after having dried it in the fun, or in the oven, throw it in the cafe. XXXIV. To

XXXIV. To heighten a wine in liquor, and give it an

agreeable flavour.

Take two dozen or thereabouts of myrtle berries, very ripe. Bruife them coarfely, after having oried them perfectly, and put them in a bag, which fuspend in the middle of the cask. Then stop this well with its bung. A fortnight afterwards take off the bag, and you will have a very agreeable wine.

XXXV. To give wine a most agreeable slavour.

Take a pailful of mout, which boil and evaporate to the confistence of honey. Then mix with it one ounce of Florentine orrice, cut in small bits, and one drachm of costus. Put all into a bag, and let it down in the cask by the bung-hole, after having previously drawn out a sufficient quantity of wine to prevent the bag from coming at it. This bag being thus suspended by a string which will hang out of the bung-hole, stop it well, and there will drop from the bag into the wine a liquor which will give it a most agreeable taste.

XXXVI. How to find out whether or not there be water mixed in a cask of wine.

Throw in the cask one wild pear, or apple. If either of these two fruits swim, it is a proof there is no water in the wine: for, if there be any, it will fick.

XXXVII. To seperate the water from wine.

Put into the cask a wick of cotton, which should foak in the wine by one end, and come out of the calk at the bung-hole by the other: and every drop of water which may happen to be mixed with the wine, will fill out by that wick or filter.

You may again put some of this wine into a cup made of ivy-wood: and, then the water will perspire through the pores of the cup, and the wine remain.

XXXVIII. To ungrease wine in less than twenty four bours.

Take common falt, gum-arabic, and vine-brush ashes, of each half an ounce. Tie all in a bag, and fix it to a hazel-tree flick; then by the bung-hole flir well the wine for one quarter of an hour, after which take it out, and stop the cask: The next day the wine will be XXXIX. To as found as ever.

XXXIX. To restore a wine.

Put in the cask one pound of Paris plaister. Then make a piece of steel red-hot in the fire; and, by means of a wire fixed to one of its ends, introduce it by the bung-hole into the wine. Repeat this operation for five or fix days running, as many times each day. Then, finally, throw into the wine a stick of brimstone tied in a bag, which you take off two days after; and the wine will be perfectly well restored.

XL. To correct a bad taste and sources in wine.

Put in a bag a root of wild horse-radish cut in bits.

L t it down in the wine, and leave it there two days:
take this out, and put another, repeating the same till
the wine is persectly restored.

XLI. Another way.

Fill a bag with wheat, and let it down in the wine;
it will have the same effect.

XLII. Another way.

Put a-drying in the oven, as foon as it is heated, one dozen of old walnuts; and, having taken them out along with the bread, thread them with a firing, and hang them in the wine till it is restored to its good taste; then take them out again.

XLIII. To cure these who are too much addited to drink wine.

Put, in a sufficient quantity of wine, three or sour large eels, which leave there till quite dead. Give that wine to drink to the person you want to reform, and he or she will be so much disgusted of wine, that the they formerly made much use of it, they will now have quite an aversion to it.

XLIV. Another method, no les certain.

Cut, in the spring, a branch of vise, in the time when the sap ascends most strongly: and receive in a cup the liquor which runs from that branch. If you mix some of this liquor with wine, and give it to a man already drunk, he will never relish wine afterwards.

XLV. To prevent one from getting intoxicated with drinking.

Take white cabbage's, and four pomegranate's juices,

two ounces of each, with one of vinegar. Boil all together for some time to the confishence of a syrup, Take one ounce of this before you are going to drink, and drink afterwards as much, and as long, as you please.

XLVI. Another way.

Eat five or fix bitter almonds fasting: this will have the same effect.

XLVII. Another way.

It is affirmed, that if you eat mutton or goat's lungs roafted; cabbage, or any feed; or worm-wood, it will absolutely prevent the bad effects which result from the excess of drinking.

XLVIII. Another way.

You may undoubtedly prevent the accidents resulting from hard drinking, if before dinner you eat, in sallad, four or five tops of raw cabbages.

XLIX. Another method.

Take some swallows' beaks, and burn them in a crucible. When perfectly calcined grind them on a stone, and put some of that powder in a glass of wine, and drink it. Whatever wine you may drink to excess afterwards, it will have no effect upon you.

The whole body of the swallow, prepared in the

same manner, will have the same effect.

L. Another way.

Pound in a mortar the leaves of a peach-tree, and fqueeze the juice of them in a bason. Then, fasting, drink a full glass of that liquor, and take whatever excess of wine you will on that day, you will not be intoxicated.

LI. A method of making people drunk, without endangering their health.

Infuse some aloe wood, which comes from India, in a glass of wine, and give it to drink. The person who drinks it will soon give signs of his intoxication.

LII. Another way.

Boil in water some mandrake's bark, to a persect redness of the water in which it is a boiling. Of that liquor, if you put in the wine, whoever drinks it will soon be drunk.

LIII. To

LIII. To recover a person from intoxication.

Make such a person drink a glass of vinegar, or some cabbage-juice, otherwise give him some honey. You may like is meet-with success by giving the patient a glass of wine quite warm to drink, or a dish of strong coffee, without milk or sugar, adding to it a large teaspoonful of salt.

LIV. To prevent the breath from smelling of wine. Chew a root of iris troglotida, and no one can discover, by your breath, whether you have been drinking wine or not.

LV. To preserve wine good to the loft.

Take a pint of the best spirit of wine, and put in it the bulk of your two sists of the second peel of the eldertree, which is green. After it has insused three days, or thereabouts, strain the liquor through a cloth, and pour it into a hogshead of wine. That wine will keep good for ten years, if you want it.

## CHAP. X.

Concerning the composition of VINEGARS.

I. To make good wine winegar in a short time.

HROW some Taxus wood, or yew-tree, in any wine, and it will not be long before it turns into vinegar.

II. To change wine into strong vinegar.

Take tartar, ginger, and long pepper, of each equal doses. Insuse all for one week in good strong vinegar, then take it out, and let it dry. And whenever you want to make vinegar, put a bag full of these drugs in wine; it will soon turn into vinegar.

1.1. To make very good and firing winegar with the worft of wines.

Grind into subtile powder five pounds of crude tar-

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tar. Pour on it one pound of oil of vitriol. Wrap up the whole in a bag, tye it, and hang it by the bunghole, in a cask of bad and totally spoiled wine. Move and stir now and then that bag in the wine, and it will turn into very good vinegar.

IV. To turn wine into winegar in lefs than three hours.

Put in the wine a red beet, and it will be quite four,

and turn vinegar, in less than three hours.

V. To restore such a wine to its first taste.

Take off the red beet, and in its flead put a cabbage root into that wine, and it will return to its primary take, in the same space of vime.

VI. An excellent preparation of vinegar.

1. Take white cinnamon, long pepper, and cyperus, of each one ounce: round pepper half an ounce, and two nutmegs. Pulverise each drug separately, and put them in so many distinct bags. Put them in six different and separate quarts of the best vinegar, and boil them two or three minutes.

2. Then boil separately fix quarts of good wine.

3. Season a cask, which is done by pouring a quart of the best vinegar into it, with which you rinse it. Then pour in your boiled wine and vinegars, and fill half-way the cask, with the worst and most spoiled wine. Stop the cask, and keep it till the vinegar is done. You may then draw from it, and resill the cask with the same quantity of bad wine, as you take off of vinegar.

VII. To render vinegar alkali.

Saturate any quantity of vinegar with falt of tartar.

VIII. To make, in one hour, good rofe winegar.
Put a drachm of hare's marrow in a point of wine,
and you will fee the consequence.

IX. Another method to make fuch vinegar in an instant.

1. Take common roses, and unripe black berries which grow in hedges, of each four ounces, and of barberry fruits one. Dry them all in the shade, and reduce them into subtile powder.

2. Mix two drachms only of this powder into a glass of white or red wine, then let it fettle to the bottom, and strain through a cloth. It will be a very fine vinegar,

X. To

X. To operate the same in one hour's time, on a larger quantity of wine.

1. Take the best rye-slour, which dilute in the strongest vinegar, and make a thin round cake with it. Bake it quite dry in the oven; then pound it into a sine powder, with which and vinegar you make again another cake as before, and bake it also like the first. Reiterate this operation three or four times.

2. If you hang the last made cake in a cask of wine quite hot, you will turn the whole into vinegar in less

than one hour.

XI. The receipt of the vinegar called the Grand Consta-

ble's Vinegar.

Take one pound of damask raisins, and cure them of their stones. Put these raisins in a glazed jar, with two quarts of good rose vinegar. Let all insuse for one night over hot ashes; then boil it the next morning four or sive minutes only. Take it off the sire and let it cool. Strain it through a cloth, and bottle it to keep for use, afterwards cork the bottle.

XII. A fecret to increase the strength and sharpness of the

vinegar.

Boil two quarts of good vinegar to the evaporation of one; then put it in a vessel, and set it in the sun for a week. Now if you mix this vinegar among six times as large a quantity of bad vinegar in a small cask, it will not only mend it, but make it both very strong and very agreeable.

XIII. Another way to do the same.

The root of rubus ideus; the leaves of wild peartree; acorns roafted in the fire; the liquor in which vetches (peas) have been boiled; horse chesnut's powder put in a bag, &c. &c. add greatly to the sharpness of vinegar.

XIV. The fecret for making good vinegar, given by a vinegar-man at Paris.

1. Pound coarfely, or rather bruise only, one ounce of long pepper, as much ginger, and the same quantity of pyretbra. Put these in a pan over the sire with six quarts of wine. Heat this only to whiteness, then put it in a small cask, and set it in the sun, or over a baker's oven, or any other warm place.

2. Now

2. Now and then add new wine in your cask after having previously heated it as before, and let that quantity be no more than two or three quarts at a time, till the cask is quite full.—If you add a few quarts of real vinegar, it will be the stronger.—Before casking the wine, you must let it rest in the pan in which it has boiled for two or three days.—A glazed earthen pan is therefore preferable to a copper one for boiling the wine in; for during the three days insusion, the copper might communicate a dangerous quality of verdigise to the vinegar.—When you put some vinegar, as before mentioned, to meliorate this composition, instead of wine, you must take care to heat it likewise over the fire, but not so much as the wine.—Let the cask be well rinsed and perfectly clean, before putting the vinegar in.

3. The wild black-berries which grow among hedges are also very good to make vinegar, but they must be used while red, before they are ripe; then put them in the wine, and heat this to whiteness, and proceed in the same manner as you do with pyrethra, ginger, and long pepper.—The dose of black-berries is not determined; you may take any discretionable quantity of them, and the vinegar which results from these is very good.

XV. To make vinegar with water.

Put thirty or forty pounds of wild pears in a large tub, where you leave them three days to ferment. Them pour some water over them, and repeat this every day for a month: At the end of which it will make very good vinegar.

XVI. To make good vinegar with spoiled wine.

Put a large kettle-full of spoiled wine on the fire; boil and skim it. When wasted of a third, put it in a cask wherein there is already some very good vinegar. Add a few handfuls of chervil over it in the cask, and stop the vessel perfectly close. You will have very good vinegar in a very short time.

XVII. A dry portable vinegar, or the vinaigre en poudre. Wash well half a pound of white tartar with warm water, then dry it, and pulverise it as fine as possible. Soak that powder with good sharp vinegar, and dry it before the fire, or in the sun. Resoak it again as before

fore with vinegar, and dry it as above, repeating this operation a dozen of times. By these means you shall have a very good and sharp powder, which turns water itself instantly into vinegar. It is very convenient to carry in the pocket, especially when travelling.

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## C H A P. XI.

SECRETS relative to LIQUORS and ESSENTIAL OILS.

I. To make as good wine as Spanish wine. 1. TAKE one hundred pounds weight of dry raifins, from which pick off the stems, and open the fruit with a knife. Put these in a large wooden tub, very clean. Boil fifteen gallons of rain-water, purified by ftraining through the filtering paper. Pour it over the raifins, and cover it, to preserve the heat of the water. Twenty-four hours after take off the raifins, which will be swelled, and pound them in a large marble mortar, then put them again in the tub. Heat fifteen gallons more of water, which pour over the other with the raisins, and throw in twenty-five pounds of coarse sugar. Stir all well, and cover the tub over with two blankets. Three days after, by a cock placed at the bottom of the tub, draw out all the liquor, and cask it, adding six quarts of brandy to it. Press the ground with an apothecary's press, and put the juice in the cask with two pounds of white tartar pounded into a fubtile powder, in order to promote the fermentation, and five or fix ounces of polychreit falt, and a knot of garden cress-seed, of about sixteen or eighteen ounces weight, and another knot of seven pugils of elder flowers. These knots are to be suspended by a thread in the cask.

2. If the wine look too yellow, you must strain it through a jelly-bag, in which you shall put one pound of sweet almonds pounded with milk. The older the wine, so much the better it is.

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a. To make it red, dissolve some cochineal pounded in a certain quantity of brandy, along with a little alum powder, in order to draw the better the dye of the cochineal, which put to digest on a fand bath. Till the brandy has assumed a proper degree of colour, give it to your wine in a fufficient degree.

4. It is preferable to clarify the fugar well, and to

put it in the cask instead of the tub.

II. Another way to imitate Spanish wine.

Take fix quarts of white wine; Narbonne honey, one pound; Spanish raisins as much; coriander bruifed, one drachm; coarse sugar, one pound. Put all in a kettle on a flow fire, and leave it there, well covered. for three hours. Strain this through a jelly-bag, then bottle and stop it well. Eight or ten days after it is fit for drinking.

III. To make the Rossolis.

1. Boil first some water, and let it cool till it is no more than lukewarm. Take next all the forts of fragrant flowers the feafon can afford, and well picked, keeping none but the petals of each flower. Infuse these, each separately, in some of that lukewarm water, to extract their odorous smell, or fragrancy. Then take them off, and drain them .- Pour all these different waters in one pitcher; and to every three quarts of this mixture put a quart or three pints of spirit of wine, three pounds of clarified fugar, one quarter of a pint of effential oil of anise-seed, and an equal quantity of essential oil of cinnamon.

2. Should your Rossolis prove too sweet and slimy in the mouth, add half a pint, or more, of spirit of wine.

3. If you think the effential oil of anise-seed should whiten too much the Resselis, mix it with the spirit of wine, before putting it in the mixed waters.

4. If you want to increase the fragrancy, add a few spoonfuls of essential oils of different flowers, with one pugil or two of musk, prepared amber, and lump sugar pulverised. Then strain the Rossolis through a jellybag to clarify it, bottle and stop it well. Thus it may keep for ten years, and upwards.

IV. To

IV. To make a Rossolis which may serve as a foundation to other liquors.

Put three quarts of brandy, and one of water, in a glazed earthen pot. Place this pot on a charcoal fire, adding a crust of bread and one ounce of anise-seed, and cover it till it boils. Then uncover it, and let it boil five minutes, and put in one pound of sugar, or more if you chuse. Now beat the white of an egg with a little of your liquor, take the pot off from the sire, and throw in the white of an egg. Let this rest thus for three days.

V. To make Amborfy.

In the above prescribed Rossilis water add three or four grains of paradise; as much cochineal pulverised; one clove; a little cinnamon and mace; fix grains of coriander, and the quarter part of a lemon.

VI. For the nectar.

Add to the above Rossilis one quarter of an orange pounded; some orange flowers, and the upper pellicula of an orange pounded in a mortar with lump sugar in powder, and diluted with the fundamental Rossilis water above described.

VII. A common Roffolis.

Instead of one pound of sugar, put only half-a-pound, and as much of honey.—To musk it, put about fifteen grains of musk, and as much of ambergrise in powder, and pounded with sugar, and mix it in the liquor.

VIII. Another Rosselis.

1. Take one pound and a half of the finest white bread, quite hot at coming out of the oven, and put it in a retort, with half an ounce of cloves bruised; green anise-seed and coriander, one ounce of each; a quart of good red wine, as much cow-milk; then lute well the receiver, and all the joints, with starched paper. Let it dry for twenty-sour hours, then distil the liquor by the heat of a balneum mariæ, and keep it.

2. Make next a fyrup, with brandy or spirit of wine, which burn over lump sugar pulverised in an earthen dish or pan, stirring always with a spoon, till the stame has subsided. Then mix one drachm of ambergrise with an equal quantity of sugar; and, having pulver-

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ifed the whole, put it in a small matras; pour over it one ounce of spirit of wine, and put all to digest for twenty-sour hours on a balneum mariæ. There will then result a dissolution which will congeal again in the cold.

3. To form your Rossilis, mix with your first composition, the above-mentioned syrup of brandy, and the effence of amber.—If you want the Rossilis to be stronger, add some more spirit of wine to it, till it is as you desire to have it.

IX. Another way.

Boil your fyrup to confistence after the common method. When done, add as much spirit of wine as you think proper, as well as of the above-mentioned essence of amber, or any other sort you please to prefer; and you will have as good Rosselis as that which comes from Turin.

X. To make Eau de Franchipane.

Put half a pound of fugar in one quart of water; add a quarter of a pound of jessamine slowers, which insufe for some time. When you find the liquor has acquired a sufficient degree of fragrancy, strain it through a jelly-bag, and add a few drops of essential oil of ambergrise.

XI. Orange-flower water made instantly.

Put one handful of orange flowers in a quart of water, with a quarter of a pound of fugar. Then beat the liquor by pouring it from one vessel into another, till the water has acquired what degree of fragrancy you want it to have.

XII. Muscadine rose-quater.

Put two handfuls of muscadine roses in one quart of water, with one quarter of a pound of sugar. For the rest proceed as above.

XIII. To make raspberry, strawberry, cherry, or other such waters.

1. Take the ripest raspberries, strain them through a linen cloth to express all the juice out of them. Put this in a glass bottle uncorked, and set it in the sun, in a stove, or before the fire, till cleared down. Then

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decant it gently into another bottle, without disturbing

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the faces which are at the bottom.

2. To half a pint of this juice, put a quart of common water, and a quarter of a pound of sugar. Beat all together, by pouring backwards and forwards from one veffel into another, strain it through a linen cloth, and fet it to cool in a pail of ice. It is a fine cooling draught in the fummer.

3. Strawberries, cherries, &c. are done in the same

manner.

XIV. Lemonade water at a cheap rate.

Dissolve half a pound of sugar in a quart of water; rasp over it the yellow part of one, two, or three lemons, as you like, and mix a few drops of effential oil of fulphur in the liquor. Then cut three or four slices of lemon in the bowl, when you put the liquor in it.

XV. Apricot water.

Take a dozen of apricots very ripe. Peel and stone them. Boil a quart of water, then take it off from the fire and throw in your apricots. Half an hour after put in a quarter of a pound of lump fugar, which being dissolved, strain all through a cloth, and put it to cool in ice as the others.

XVI. To make exceeding good lemonade.

On a quart of water put the juice of three lemons, or two only if they be very juicy. Add seven or eight zests of them besides with one quarter of a pound of fugar. When the fugar is defolved, Arain the liquor, and cool it in ice as before mentioned.

XVII. To make orangeade the same way.

You proceed with your oranges as with the lemons. If these be good, but little juicy, you must squeeze three or four oranges, with the addition of eight or ten zests. If you love odour, you may add some musk and prepared amber.

XVIII. To make Eau de Verjus \*.

Put on a quart of water three quarters of a pound of Verjus in grapes picked out from the stalks. Squeeze

<sup>\*</sup> A fort of sour grape used in France as a fine acid in sauces.

it first in a marble or wooden mortar, without pounding it, for fear the stones should give it a bitter taste. After having put fruit, juice, and all in the water, handle it in the water, then strain it to purge it from the coarsest grounds; add about sive ounces of sugar to the strained liquor, or more if wanted, according to the sources of the fruit. As soon as the sugar is dissolved, pass and repass it through the jelly-bag to clarify it: then cool it in ice, as usual, for drinking.

XIX. To make orgeat-water.

Take one ounce of melon feed, with three sweet and three bitter almonds. Pound all together in a marble mortar, adding a few drops of water to it while you pound, to prevent its turning into oil. Make all into a passe with the pesse in the mortar, then add a quarter of a pound of sine white lump sugar in powder, which mix with the passe. Dilute this in a quart of water, and after having mixed it well, strain it through a stannel. Squeeze well the grounds in it till quite dry, and in the liquor add seven or eight drops of essential oil of orange; and, if you like it, a quarter of a pint of milk pure as from the cow. Put this to cool in ice, and shake the phial when you serve it in a glass to drink.

XX. Other avaters.

The pigeon, the pistachio, and the Spanish nut waters, are made in the very same manner; the milk and almonds of either forts, being only excepted.

XXI. To make a cooling cinnamon water.

Boil one quart of water in a glass vessel before the sire. Then take it off and put in two or three cloves, and about half an ounce of whole cinnamon. Stop well the bottle; and, when the water is cold, put half a pint only of it in two quarts of water with sugar to your palate, a quarter of a pound is generally the proper quantity. When done, cool it, as usual, in ice before serving.

XXII. To make coriander water.

Take a handful of coriander, which shell, and put in a quart of water half cooled again, after having boiled. Add one quarter of a pound of sugar, and, when the water

water has acquired a sufficient degree of taste, strain, cool, and serve it as usual.

XXIII. Anise-seed water.

The anise-seed water is made in the very same manner as the coriander water.

XXIV. Citron water.

Take a citron, which strip of its peel, and cut in slices cross-way. Put these slices in a quart of water, with a quarter of a pound of fugur. Beat well this water by pouring it backwards and forwards from one vessel into another, and when it has a fufficient tafte of the citron, frain it. &c.

XXV. Cinnamon water.

Bruise one pound of the finest cinnamon, and put it to infuse for twenty-four-hours in four pounds of difilled rose-water, with half a pound or a pint of white wine, which put all together during that time in a glass matrass on warm ashes, and stop well the vessel, so that it should breath no air. At the end of twenty-four hours increase the fire so as to procure a distillation, by putting the matrass in the balneum maria, and keep this liquor in bottles well stopped.

XXVI. To make cedrat water.

Have a dozen of fine lemons, which split into two parts. Take out all the kernels, and keep nothing but the pulp wherein the juice is contained. Put them in 2 new glazed earthen pan. Boil one pound of fugar to the plume degree, then pour it in the pot over the lemons. Set this on a good charcoal fire, and boil it again till the fugar comes to the pearl degree, and then bottle it.

XXVII. To make cedrat another way.

1. Squeeze the juice out of thirteen lemons, which Arain through a cloth, and put them aside.-Then put two quarts and a half of water in a pan. In a piece of linen put three other lemons parted into quarters, which tie and suspend in the water, then boil them till the water has entirely extracted the tafte of the lemons, and take them out.

2. In this water, thus prepared, put four pounds of sugar, and make a syrup, which clarify according to art,

with the white of an egg. When done, put in this fyrup the juice of your thirteen lemons, and boil all together again to the confishence of a fyrup to the pearl degree, then bottle it.

3. When you want to use it, put four or five ounces of sogar in a quart of water and strain it through a jelly bag, then put in a table spoonful or more of your syrup,

beat, cool, and drink it.

XXVIII. Juniper-water.

Put two pounds of juniper-berries with two quarts of brandy in a stone bottle, which stop well, and place on hot ashes to insufe for twenty-four hours. Scrain the liquor, and add one pound of sugar, half an ounce of cinnamon, as much cloves, a preserved half-peel of a whole lemon, and two pugils of anise-seed. These being put in the bottle, stop it well, and place it at two or three different times in a baker's oven, after the bread is out, and when you may bear your hand slat in it without burning.

XXIX. To make good hydromel; otherwise, metheglin.

Take honey and water equal quantities in weight. Boil them together and skim the honey. When done sufficiently you may know by putting an egg in, which must swim on the top. Pour then the liquor in a cask wherein there has been spirit of wine or good brandy well soaked with either, and still wet with the spirit, and add two or three grains of ambergrife. Stop well the cask, and set it in the sun during the dog-days. When it begins to ferment, unstop the cask to let the scum out, which arises like that of new wine. Observe, during all that time not to stir the cask. When the sirft sire of the fermentation has subsided, stop the cask again, and the hydromel is sit for keeping.

Note. Instead of the sun, you may, in other seasons, make use of the top of a baker's oven, a stove, or a

hot house.

XXX. To make Eau d'Ange.

1. Take half a pound of the best cinnamon, and fifteen cloves, which pound into powder and put into a quart of water, with a nut-shell full of anise-seed and infuse for twenty-sour hours, then boil on a charcoal are, and strain.

2. If you want to make it stronger, you may, after it is cold, put what quantity you like of brandy, with a proportionable quantity of fugar.

XXXI. Another Eau d'Ange.

Pat a quart of rose-water in a glass bottle with three ounces of benjamin, and half an ounce of storax in powder, which incorporate all together for four or five hours on a flow fire. Decant the liquor by inclination, and add to this colatura fix grains of mulk, and as many of grey amber.

XXXII. Another Eau d'Ange.

1. Take three pounds of Rose water, three of orange, and two of melilot-flowers; four ounces of benjamin, and two of storax; aloes, and fantalum-citrinum, one drachm of each; cinnamon and cloves, of each one; the bulk of a bean of calamus aromatica, with four grains of musk. Bruise coarsely what may be susceptible of the mortar, and then put all the drugs together in a varmished earthen pan, which set on a gentle fire to boil moderately to the evaporation of one third. Then firain it clear.

2. With the grounds you may make lozenges, with a little gum adragant to compact them .- This ground is used also in making musk vinegar.

XXXIII. A light and delicate Rossolis, known under the denomination of Populo.

1. Boil three quarts of water, then let them cool apain. Add one quart of spirit of wine, one of clarified fugar, half a glass of effential oil of cinnamon, and a

very little of musk and ambergrise.

2. Observe the sugar should not be boiled too much in clarifying, for fear it should crystalize when in the Rossolis, and cause clouds in it. Observe also to boil the water first, as prescribed before using it, to prevent the corrupting of the liquor; which would infallibly be the case were you to imploy it unboiled.

XXXIV. Angelic water.

1. Take half an ounce of Angelica, as much cinnamon, a quarter part of cloves, the same quantity of mace, of coriander, and of green anife-feed, with half

en ounce of cedar wood. Bruise all these ingredients in a mortar, and fet them to infuse for twelve hours, with two quarts of genuine brandy, in a matrafs or retort. Then distill the liquor by the balneum maria.

2. Two or three ounces only of this essential spirit in two quarts of brandy, with the addition of a very fmall quantity of musk and ambergrise, will make a very agreeable liquor.

XXXV. The preparation of musk and amber, to have it ready when wanted to put in cordials.

Put in a mortar and pulverise sour grains of ambertwo of musk, and two ounces of sugar. Wrap this powder up in a paper, and cover it over with feveral others .- With this powder you may perfume such cordials as require it .- The dose is a pugil, which taken with the point of a knife, you shake lightly in it. You may however increase or diminish this dose, according to your liking.

## XXXVI. To make Eau-de-Cete.

To three quarts of boiled water, cooled again, put a gill of essential spirit of anise-seed mixed into three pints of spirit of wine. Add one pint, or thereabouts, of clarified sugar. - If you want your liquor to be stronger, you need only to increase, at will, the quantity of the fpirit of wine.

XXXVII. To make the compounded Eau-clairette.

Take fix pounds of the best and finest Kentish cherries very ripe, found and without spots; two of raspberry; and the same quantity of red currants, also very ripe and found, and without stalks. Mash the whole in a sieve over a pan. To every one quart of that juice put one of brandy, with three quarters of a pound of fugar, seven or eight cloves, as many grains of white pepper, a few leaves of mace, and a pugil of coriander, the whole coarsly bruise in a mortar. - Infuse all these together, well stopped, for two or three days, shaking it now and then, to accelerate the dissolution of the fugar. Then strain the liquor, first through the jelly-bag, next filter it through the paper, and bottle it to keep for use. XXXIX. The

XXXVIII. The cinnamon water.

In three quarts of once boiled, and then cooled again. water, put half a pint of essential spirit of cirnamon. diffilled like that of anife-feed. Add three pints of foirit of wine, and one of clarified fugar. Strain all through the jelly-bag, &c. &c.

XXXIX. To make a firong anife-feed water, or animated brandy.

Put halfa pint of essential spirit of anise-seed, into three quarts of the best genuine brandy, with one of boiled water .- If you want it sweet, add one pint of clarified (ugar. Strain all through the jelly-bag, etc. etc.

XL. To make white ratafia, called otherwise Eau-de-Noiau, or kerne! water.

Pound three quarters of a pound of cherry, or half a pound of apricot, stones, or both together if you will; which put altogether, wood and kernals, or almonds, in a stone pitcher, with twelve quarts of brandy. Add one drachm of cinnamon, a dozen of cloves, two pugils of coriander, and three pounds and a half of fugar. Let all these infuse together a reasonable time. When sufficiently tafty, and ready to firain, add four quarts of water that has been boiled and is cool again. Then run it through the jelly-bag, and next through the filtering paper; bottle and stop it to keep for use.

XLI. To make good Hypocras, both the red and white fort.

T. Take two quarts, more or lefs, as you like, of the best wine, whether red or white. Put in one pound of the best double refined lump sugar, two juicy lemone, feven or eight zests of Seville orange, with the juice fqueezed out of another of the fame fort. Add half a drachm of cinnamon bruifed in a mortar, four cloves broken into two parts, one or two leaves of mace, five or fix grains of white pepper bruifed, half of a capficum's pod, and one ounce of coriander bruifed, half a pint of genuine cow milk, half a golden pippin, or a whole one, peeled and cut in flices.

z. Stir well these ingredients together in your wine, and let it reft a reasonable time, no less at least than

twenty-four

twenty-four hours. Then obtain the liquor through the flannel bag, repeating the fame till it comes clear.

3. If you want to perfume that Hypocras, you must put in the bag when you run it, a little pugil of musk and amber powder prepared, as mentioned in this chapter, Art. xxxv. This Hypocras may keep for a twelve-month without spoiling.

XLII. To make good Rossolis.

Dissolve one pound and a quarter of sugar, in half a pint of spirit of wine. Boil it one bubble or two only, to give an opportunity of skimming it. When done, put it in a large glass bottle, with three pints of good white wine, and a gill of orange-flower water. Musk and amber it as usual, and at your liking.

XLIII. An essence of Hypocras, to make this liquor infantly, and at will.

1. Put in a pint bottle one ounce of cinnamon; a little more than half an ounce of cloves; and, on the point of a knife, a little musk and amber, prepared as in Art. xxxv. Fill it half-way with spirit of wine, or the best brandy; then stop it so that nothing can evaporate. Set all to insuse for seven or eight days on warm ashes. And, when it shall have wasted two thirds, or thereabouts, preserve carefully what shall remain.

2. When you want to make Hypocras instantly, melt half-a-pound of lump sugar in a quart of good wine; and, when perfectly dissolved, let fall one drop or two of the above prepared essence, in a clean glass decanter, in which pour directly the wine with the sugar dissolved in it, then run it through the slannel bag. Bottle it again, or drink it; the Hypocras will be found good.

XLIV. An exceeding good Ratafia.

On a quart of good brandy, put half a pint of cherry juice, as much of currants, and the same of raspberries. Add a sew cloves, a pugil of white pepper in grain, two of green coriander, and a slick or two of cinnamon. Then pound the stones of the cherries, and put them in, wood and all together. Add a sew kernels of apricots, thirty or forty are sufficient. Stop well the pitcher,

which must be a new one, after all these ingredients are in, and let the whole insuse a couple of months in the shade, shaking twice or thrice during that space of time, at the end of which you run the liquor through the slannel bag, and next through the siltering paper, then bottle and stop it well for use.

Note. In increasing in due proportion the quantity of the brandy, and the doses of each of the ingredients prescribed, you may make what quantity you like of this

Ratafia.

XLV. An essence of ambergrise.

Pound one drachm of ambergrise, and put it on a pint of good spirit of wine, in a thick and green glass bottle. Add to it half a drachm of mosk in bladder, cut very small. Set this bottle in the full South sun, on gravel, during the dog-days, taking it off every night, and during rainy weather. Stir and shake well the bottle, and its contents, two or three times a-day, when the sun strikes on the bottle, that the amber may diffuse in the liquor. One month after, take off the bottle from its exposition, and the essence is made.—Decant, bottle, and stop it for use.

XLVI. Another, and shorter way of making the same. Put two grains of ambergrise, and three of musk, in a matrass with one gill and a half of good brandy. Stop the matrass well, and put it in digestion in a balneo mariæ, for two or three days. Strain it through a piece of sannel, and bottle it to keep for use.

XLVII. A smelling water.

1. Put in any quantity of brandy, benjamin, and storax calamite, equal parts; a little cloves and mace, coarsely bruised. Set this a-digesting for five or six days on warm ashes. When the liquor is tinged of a fine red, decant it gently from the residue in a glass bottle, and throw in a few grains of musk, before stopping it.

2. Three drops of this smelling water in a common glass tumbler of water, give it a very agreeable fra-

grance.

3. With the ground, or residue, you may make lozenges, in adding a little gum-adragant to bind them.

XLVIII. A

XLVIII. A receipt to compose one pint of Rossolis, with

which you can make forty.

1. Take two ounces of galanga; half a one of cinnamon: as much cloves; one of coriander; a pennyworth of green anife-feed; half an ounce of ginger; two drachms of mace, and two of Florentine orrice. Bruife all, and put it to infuse with three pints of the best brandy, in a matrass with a long neck. Adapt it to the receiver, and sue well all the joints, both of the receiver, and the bolt-head, with paper and starch.

2. Twelve hours after it has been a-digesting, distil the liquor by the heat of a very gentle balneum mariæ, till you have got about one quart of distilled spirit.—

Then unlute the receiver and keep the liquor.

3. You may adapt another receiver, or the fame again, after being emptied, lute it, and continue to distil as before. But what will come will be infinitely weaker, though perhaps not altogether very indifferent.

XLIX. To make a Rossolis after that of Turin.

Take fix quarts of water, which boil alone, one minute or two; then put in four pounds of fine lump fugar, which skim and clarify with the white of an egg beaten up with a little cold water. Boil afterwards that syrup to the wasting of a third, then strain through the slannel bag; and, when cold, put in one gill only of the above Rossilis, prescribed in Art. xlix. and of the sirft distillation. Add to it besides a pint of spirit of wine, or, for want of it, of the best genuine French brandy, in which you shall have put a crust of bread burnt, to take off a certain bitter taste. After all this, persume the liquor with a few drops of essence of musik and amber.

Note. A pint of the fecond distillation is no more than half a pint of the first.

L. How to make Sharbat, a Persian species of punch.

There are various ways of making Snarbat.—Some make punch here with rum only, others with brandy; others again with arrack, and others with shrub. Some will have it mixed with two of these spirits, and others will make it with white wine. There are some who put acids, others do not; and, among the acids, some chuse

chuse tartar only, others lemons, and others Seville oranges; some again squeeze a little of each of these two last tart fruits together in the same bowl of punch,

It is the same with respect to sharbat, the samous Persian drink. They make it with the various syrups extracted from all the odoriferous slowers: and the dose is, one part of such a syrup to ten parts of any spirituous liquor.—Or again, they make a weak Rossis, with the zests of oranges and lemons boiled together in water with sugar.—Some, in short, will make it with the essential spirit of musk and amber only, put in boiling water with sugar, just as we do our punch.

I.I. An exceeding fine effence of Hypocras.

r. Take fix ounces of cinnamon; two of fantalum-citrinum; one of galanga; one of cloves; two drachms of white pepper; one ounce of grains of paradife. Or, if you would not have it so strong, put with the cinnamon and fantalum one ounce only of white distanum, and four whole grains of long-pepper. Pound well all together, and set it to insuse for five or six days in a matrass, along with half a pint of spirit of wine, on warm ashes. Decant it next gently without disturbing the grounds, which put in linen and squeeze it, to get out all the liquor, which put again in the matrass, with twenty grains of ambergrise, and six of musk. Stop well the vessel, and set it in a cool place for sive or six days more; then mix both liquors together, and silter them.

2. When you want to make Hypocras, diffolve half a-pound of fine lump fugar, in a quart of white Lifton, or red claret, and let fall fifteen or fixteen drops of the above effence in it, then shake all well together, and you will have a most admirable liquor. To render it still more agreeable, you may strain it through a stannel bag, at the bottom of which you shall have put some pounded almonds.

LII. To make Vin-des-Dieux.

Peel two large lemons, and cut them in slices; do the same with two large golden pippins. Put all afoaking in a pan with a pint of good Burgundy, three quarters of a pound of lump sugar in powder, six cloves,

and half a gill of orange-flower water. Cover the pan, and keep it thus for two or three hours, then strain the liquor through the stannel bag. You may musk and amber it, like the Hypocras, if you will.

LIII. Burnt wine.

Put a quart of good Burgundy in an open pan, with one pound of fugar, two leaves of mace, a little long-pepper, a dozen of cloves, two or three tops of rofe-mary branches, and two bay-leaves. Place that in the middle of a wheel-fire of blaffing charcoal. When the wine begins to be hot, fet the fire to it with a bit of paper, and thus let it kindle and blaze till it goes out of itself. This wine is drank quite hot, and it is an admirable drink, especially when the weather is very cold.

LIV. To imitate muscat wine.

In a cask of new white-wine, (that is to say, before it has worked) introduce, by the bung-hole, sive or six tops of elder-flowers dried up. Let these flowers hang by a string, and eight or ten days after take them out again. You will obtain a wine which will not differ from muscat.

LV. Eau-clairette simple.

Infuse for twenty-four hours three ounces of cinnamon bruised in three pints of brandy. Strain it asterwards through a clean cloth, and add two ounces of good lump sugar, with a pint of rose water. Stop well the bottle and keep it for use.

LVI. A violet water.

Infuse some violets in cold brandy. When these have lost their colour, take them out, and put in new ones. Repeat this till you are satisfied with your tincture. When you take the violets out, you must press them gently; then sweeten that brandy according to discretion; and, if you chuse you may add again a little orange-flowers for the sake of the odour.

LVII. To make a clear and white Hypocras.

To every one pint of claret, add eight ounces of fugar, and nine, if it be white wine; half a lemon, four cloves, a little cinnamon, which should be double the quantity of cloves; three grains of pepper; four of coriander;

riander; a little bit of ginger; and eight almonds cut in bits.—Let the whole be bruifed and put into a pan, with the wine poured over it; fiir, infuse one hour, and strain through the stannel bag.

LVIII. For the white Hypocras.

To make the white Hypocras, three pints of white wine; one pound and a half of sugar; one ounce of cinnamon; twenty-three leaves of mace; two grains of whole pepper; with two lemons cut in slices. Then, when you strain the liquor through the slannel bag, six a grain of musk in the pucked end of it.

LIX. To make the true Eau-de-Noiau.

Pound one pound of apricots' kernels, without reducing them into oil. Then bruife another pound of cherry-flones, wood and kernels all together. Put all in a pitcher of five or fix gallons, in which you put only three and a half, or four gallons of the best brandy, and two of water; five pounds of sugar; and to every one quart of liquor add two grains of white pepper, and eight drachms of cinnamon both bruised. Let all insufe forty-eight hours, and then strain the liquor through the sannel bag.

LX. To make Eau-de-Fenouillette, fuch as it comes from .
the Use of Retz.

Take one pound of Florence fennel, the greenest and the newest you can find. Put it in an alembick with one ounce of good liquorice-root, three quarts of brandy, and two of white wine. Distil by the sandbath, two quarts of good effence, which you must take away as soon as the white sumes begin to rise, because they would undoubtedly hurt the liquor by whitening it.

2. To every one quart of this effence, perfectly clear and transparent, add fix of genuine brandy, and one of spirit of wine, with one of boiled water that has been cooled again, in which last, just before mixing it with the other liquors, you must introduce one quart also of clarified sugar, or syrup.

3. Make this mixture in a large and wide glazed pan; and, when the doses are thus introduced toge-

ther, the the liquor, that you may judge whether or not all are right, and be in time to add either some more essence of sennel, or syrup of sugar, or brandy, &c.—If it take bitter or rather tart, you may correct that desect by the addition of a little more cold water

which had boiled.

4. After this, bruife half-a-pound of fweet almonds, which put in another pan, with five or fix quarts of crude water, and boil well with it, then firain through a flannel bag, in order to season it as it were, by preparing and greafing it. When, therefore, the big begins to run clear, and all which was in it is almost gone, fo that it only drops, change the pan under it, put another clean one, and pour your preparation, such as mentioned in the above n. 3. in the bag, over the ground of almonds which was left in .- Should this process seem too troublesome to you, you may at once mix the half pound of bruifed almonds in your liquor, and then throw it in the flannel bag, straining; and re-straining it over and over again in that same bag, till at last it runs clear; to assist it even in which, you may add half a pint of pure and genuine cow milk. But in observing the first prescription, there refult less lye at the bottom of the vessel in which you keep it for use.

5. When you run it for the last time, which cannot be before it runs quite clear, observe to put a funnel on the mouth of the pitcher or bottle which receives it and over it a crape in order to retain the spirits which

might evaporate.

6. You may amber afterwards the liquor, with a little powder of music and amber, prepared as mentioned in Art. xxxvi. of this chapter. This liquor is of a fuperior delicacy.

I.XI. To make an hypocras with water.

Take half a pint of white wine, and fix times as much water which had boiled; add the juice of two lemons, and five or fix quarters; the juice of a Sevil orange, twenty-four grains of cinnsmon; two or three cloves, one leaf of mace; one pugil, or two, of bruifed coriander; four grains of whole pepper bruifed; one quarter

quarter of a pound of golden pippins cut in slices; half a pound of sugar; half of a Portugal orange with a few zests, and a quarter of a pint of milk. Mix all well; and, two hours after the infusion, strain it through a stannel bag, and perfume it with a little prepared powder of musk and amber. Some, however, who do not like amber, content themselves with increasing only the dose of cinnamon.

LXII. Of the various liquors with which Hypocras may be made.

You can make hypocras with either of the following liquors; viz. Spanish wine; Muscat, Rhyne-wine, Hermitage, Champaign, &c. adding to any of these wines the same proportion of ingredients as above prescribed; and clarifying well afterwards by means of silteration.

LXIII. A roffolis, Turin fashion.

In three quarters of a pint of orange-flower-water put to infuse a little storax, a little musk, a little amber. Twenty-four hours after these ingredients have been put together, set them a-boiling for half a quarter of an hour on the fire, then strain it through a cloth. Add next a pint of genuine French brandy. Should any tartness be prevailing, add some honey or sugar according to discretion. But, if you chuse to have it stronger, then you may add spirit of wine till the taste is come to the degree of strength you would have it.

LXIV. An admirable oil of fugar.

Rinse a matrass with vinegar, then put in it some dry powder sugar, or lump sugar pulverised. Keep that matrass on hot ashes, turning and whirling it round and slat ways, by means of the neck of the matrass which you hold in your hands with a cloth, and stop it not. The effect is such: the heat occasions the vapours to rise about the matrass; which by turning and whirling it as afore-mentioned, makes the sugar which is in it re-soak and imbibe them again. This operation dissolves the sugar, and reduces it into a fort of oil.

LXV. Another oil of fugar, without the affiftance of fire.

Take a lemon, which hollow and carve out inwardly,
taking

taking out all the pulp as skilfully as possible. Then fill it up with fugar-candy in powder, and fuspend it in a very damp cellar, with a bason under it. There will drop an exceeding good oil, which is endowed with the most admirable qualities for confumptive people, or them who are affected with a difficulty of breathing.

Note. A little of that oil in liquors gives to any one

of them, to which it is added, a very fine flavour.

LXVI. An admirable essence of red sugar. 1. Pulverise five pounds of the best double-refined,

or royal, fugar; which, when done, put along with eight ounces of brandy in a large matrass, over a fand bath. Distil some part of this first, on a slow fire to avoid burning the fugar. Re-put the distilled liquor over the sugar again in the matrass. Continue to diftil and pour the liquor again in the matrass over the fugar till the fugar becomes red, which will happen at the seventh or eighth iteration of distillation.

2. Now diffil out all the brandy, and on the remaining fugar pour common water, which distil also, then add some more, continuing so to do, till you have

drawn out all the tincture of the red fugar.

3. Take next all these red waters, and run them through the filtering paper, then distil the phlegm on a gentle fire to ficcity (or dryness). Put again this distilled phlegm on the residue, which place all together in a cold cellar. You will find some red crystals which pick up, and when dry pulverise; then pour brandy over to dissolve that powder. Thus you will have an admirable quintessence of sugar, which has the virtue of preserving the radical moittness of the inside, and our health.

Note. If you mix a little quantity of this precious quintessence in any liquor or cordial, it is a very fine

addition to it.

LXVII. Another oil of sugar, excessively good. Cut off the end of a large lemon, of which squeeze out the juice; then fill it with fine fugar, and apply to it again the cut-off piece. Put it in a clean glazed pipkin, which place over a fire of charcoal. The fugar

having

having thus boiled one quarter of an hour only, put it in a bottle; it never will congeal, and that oil is good for the stomach, colds, catarrhs, &c. The odour and taste, are both excessively agreeable. The dose is one table spoonful at a time.

LXVIII. How to extract the effential oil from any flower.

Take any flowers you like, which stratify with common sea falt in a clean earthen glazed pot. When thus silled to the top, cover it well, and carry it to the cellar. Forty days afterwards put a crape over a pan, and empty all on it to strain the essence from the slowers by pressure. Bottle that essence and expose it for four or sive weeks in the sun, and dew of the evening, to purify. One single drop of that essence is enough to scent a whole quart of liquor.

LXIX. Essence of jessamine, roses and other flowers.

1. Take roses of a good colour and fresh gathered. Pick all the leaves, which expand in the shade on paper. For two or three days, during which you are to leave them there, asperse them once or twice a day, morning and evening, with rose-water stirring them each time, that the rose-water may imbibe and penetrate the better the leaves of these flowers.

2. When this has been performed, put them in a glass, or varnished vessel, which stop as perfectly as you can, and place in the corner of a stable plunged in the hotest horse-dung, which renew three times, that is, every five days. A fortnight after this, place the vessel in a balneo mariæ adapting a bolt head to it and a receiver, and lute all well. Distil the water, on which you will observe the essence swimming. This you must divide by means of a wick, or siltering paper. Put the essence in a glass phial well stopped.

LXX. To draw an oil from jessamine, or any other slowers.

Soak some sweet almonds in cold water, which renew ten times in the space of two days; at the end of which, peel them and make one bed at the bottom of a vessel; next to this bed, make another of slowers, and thus continue to make strata super strata with your almonds and flowers, till the pot is full. Renew and change the flowers till you can judge that the almonds are perfectly impregnated with the odour and fragrancy of the flowers, then extract the oil by the press.

LXXI. To draw the effential oil of roses.

Pound in a mortar thirty pounds of leaves of roses with three pounds of common decrepitated salt; them put all in a pot well luted, which set in a cool place. Fifteen or eighteen days after, moisten well this matter with common water, stirring it with a slick till reduced into a pap. Then put it in an alembick with its restigerator. Make a pretty smart sire which will send first the water, but next will come the oil susceptible of congealing by cold and liquifying again by heat. One or two drops of that oil gives more smell a hundred times than the distilled water from the same roses.

LXXII. The oil of cinnamon.

Bruise first the cinnamon coarsely in a mortar, and put it a-soaking in water, in which add a little pounded tartar, with a table spoonful or two, of honey. Eightorten days after, place the vessel on a sand bath, and you will obtain by distillation, an excellent oil of cinnamon.

LXXIII. An effence of jeffamine.

Dissolve, over the sire, one quarter of a pound of sugar in a quarter of a pint of common water. After having skimmed it, boil it to perfect evaporation of all the water; then take it off from the sire, and sling two good handfuls of jessamine slowers in it. Cover the vessel, and one or two hours after, strain the essence, and bottle it. It is of an excessive agreeable odour. The dose is one drop only, or two per pint of liquors.

LXXIV. Essence of Ambergrise.

Set to infuse, half a dozen of lemon peels in three half pints of spirit of wine, and set them thus in a cold place for two days, in a vessel well stopped. After that time take off the peels, which squeeze through a linen, and put as many fresh ones in their stead, which reiterate three different times. When you take off the last peels, grind three grains of ambergrise and

one of musk, which put with the spirit of wine in a matrass over a gentle fire till the amber is persectly dissolved. There will fall some ground at the bottom of the matrass, decant the clear part from it in a bottle; and keep it for use.

Note This effence might be made with the burning

spirit of roses.

LXXV. Essence of capon and other fowls.

Cure the infide of any fowl by taking away all the entrails. Fill it with lump-fugar pulverised and mixed with four ounces of damask raisins perfectly stoned. Sew the fowl up again, and put it in a pipkin, which cover carefully with its lid and lute all round with passe. Place this pot in an oven, when the bread goes in and take it out along with it. Then uncover it, and strain the liquor through a cloth, with expression of the animal. This essence is the greatest restorative for old or enervated people; likewise to hasten the recovery of health after long illness. The dose is two large table spoonfuls early in the morning fasting, and as much at night three or four hours after supper.

LXXVI. Virginal milk.

as much, and one of eastern white balm. Put all in a thick glass-phial, with three half pints of spirit of wine which pour over. Put this in digestion over hot ashes till the spirit of wine appears of a fine red colour, then it is done.

2. To use it, put only two or three drops of it in half a glass tumbler of water, and it instantly turns as white

as milk.

3. Exteriourly used, it whitens the skin if you wash yourself with it, it has likewise the same effect upon teeth by rinsing the mouth and rubing them with it. Interiourly taken, it cures the heats and burning of the extinction of voice.

LXXVII. How to make the Hipoteque.

To every quart of water you want to employ, put one quarter of a pound of fugar, which boil and skim carefully. Then add a few cloves, a little cinnamon, and

fome lemon zests, which boil all together sour or five minutes longer, and strain it through a cloth. To colour it, you may put half a pint of good red wine to each quart of water you have employed; and, to give it a certain piquant, you may again add a little brandy if you like.

LXXVIII. An exceeding good ptifan.

Boil well, in fix quarts of water, one pound of liquorice root; to which you may add one handful or two of coriander feed, and a few cloves. Two or three hours after this infusion, strain the liquor through a cloth, and keep it to make ptisan, when you want it, by putting a discretionable quantity of it into some common water with a few lemon peels to give a pointe. The liquorice may serve twice.

LXXIX. How to colour any fort of liquor.

Bruise into a coarse powder some santalum rubrum, which put into a bottle with a discretionable quantity of spirit of wine poured over it. In five or six hours time the tincture will be very high; therefore it will be fit to give a colour to any liquor you chuse, by pouring some of it into the liquor, and shaking it till you find it is coloured to your liking.

LXXX. A ladies fine rouge, not at all hurtful to their skin like other rouges, wherein there always enters a

mixture of lead or quick filver.

The above preparation of fantalum rubrum, modified with common water to take off the strength of the spirit of wine, and an addition of one clove, a little civet, a little cinnamon, and the bulk of a silbert of alum, per quarter of a pint of liquor, may be used with safety by ladies to heighten the bloom of their sace.

LXXXI. An exceeding fine finelling water, made at a very small expense.

Take two pounds, or two quarts, of rose water drawn by distillation in balneo marize, which put in a large bottle filled with fresh rose leaves. Stop this bottle well with a cork, wax it and cover it with parchment, then expose it to the sun for a month, or six weeks; afterwards decant the liquor into another bottle in which,

which, for every one quart of liquor, add two grains weight of oriental musk, and cork it well. This water is of a charming fragrancy, and lasts a great while whatever part of your body you may rub with it. It even communicates the odour to them you touch after having rubbed your hands with it.

LXXXII. The receipt of the Eau-imperial, or Imperial water.

1. Set a-drying in the sun for a fortnight, the rinds of twenty-four oranges. Then pound a quarter of a pound of nutmegs, the same quantity of cinnamon and as much cloves. Put all together a-soaking in a large bottle with rose water, and expose it for seventeen days in the sun.

2. At the end of that term pound one pound of rose leaves which has been gathered two days before, with two handfuls of sweet marjoram, two pounds of lavender, two handfuls of rosemary, two pounds of cyprus, two handfuls of hysop, as much wild roses and as much betony. Put all these together by themselves in a bottle well stopped, and place it in the sun for two days; then having poured some rose water over them, set them again three days longer in the sun.

3. When all this is done, have an alembic ready in which make a bed of one pound of roses, and over it another bed of one half of your aromates; next, another bed of one pound of violets of march, and over it a bed of the other half part of your aromates with a scruple of musk, and as much of ambergrise. Adopt the receiver to the bolt head, and distil the li-

quor by the gentle heat of a fand bath.

4. When the water is entirely distilled, let the vessels cool, and having unluted them, put on the faces a pint of rose water. Lute the vessels again, and distil this water as you did the first, it will be far superior to it. Unlute again and put vinegar in the Alembic over the same faces, and distil it likewise as you did the preceding waters. That vinegar will have great virtues, and especially that of preserving you against an air insected by contagious and pestilential disorders.

LXXXIII. The

LXXXIII. The receipt of the syrup of orgeat of Mont-

pellier.

1. Take a pound of barley which you foak in water; and, having peeled it grain by grain, make a knot of it in a bit of linen. Put this knot in a pot over the fire with about a quart of water. After having boiled it gently three or four hours, put into the water one pound of sweet almonds, which mix and dilute well in it. Then take off the knot of barley, which you pound like the almonds and mix like them in the water. Strain all together through a piece of linen; then pound the grounds well and pour all the water over it again, which sir all together and strain again. This water will look very thick. Put one pound of lamp fugar in powder, to that liquor, and boil it into a fyrup over a moderate fire. You will know that the fyrup is done to its right degree if, letting one drop fall on the back of your hand, it remains in the form of a pearl. Then take it off from the fire, and when cold, give it what flavour you chuse whether amber, musk or other odour. Such is the fyrup of orgeat, which you bottle and keep for use.

2. To make the draught which, in coffee houses or other places of refreshment, is called orgeat, put at the bottom of a decanter half an ounce, or one ounce, of that fyrup and pour common water over it, then shake the decanter well to mix the water and the fyrup together. It is sit for drinking directly. In the summer you may cool it, if you chuse, in a pailful of ice and water, and you may add syrup, or water, to the sirst mixture, according as it wants to make it agreeable to

the palate.

LXXXIV. A receipt to make an imitation of coffee.

1. Take any quantity of such beans as they give to horses among their oats, which put into a pan to roast over the fire till they begin to blacken. Then take a little honey with the point of a knife and put it among the beans turning them well with it, till soaked in the beans, repeating the same process seven or eight times, or till in short they are quite black, or of a very deep brown like chesnut colour. Now take them off from

the fire, and while they are quite burning hot put for every large handful of fuch beans, half an ounce of cafia-mundata, with which imbibe them well in stirring and shaking them in the pan as much as you can, and they are done.

2. These if you grind in the mill and make coffee of, as you would of the other, it will have the same taste and slavour as the true Moca-coffee, so as not to be distinguished from it by the greatest connoisseurs.

Note. This coffee may be drank either thick or clear,

with fugar as usual.

LXXXV. Another way.

Take a quart of rye, which clean and roast as the beans in a pan till of a fine brown, then grind it. To use it, mix it half and half with the true coffee and make it as usual, by putting it in boiling water and letting it boil five minutes.

Note. This coffee is much used among the people of quality who prefer it to the pure and real coffee to firengthen the stomach, especially when taken at might before going to bed.

LXXXVI. Directions for preparing the true coffee.

r. True coffee must be torrised (vulgarly roasted) in an iron pan, or in a glazed earthen pan, over a clear charcoal fire without stames. Turn it with a wooden stick while it is on the fire, to make each grain take the roast more regularly and equally; and shake it now and then by tossing it up from the pan into the air, and in the pan again. It is well and sufficiently roasted when it is all of a dark brown, or the colour of tan.

2. There is a much better method of roasting it which is infinitely less troublesome and more handy, by which coffee is excessively well and regularly roasted. It is by means of a certain iron drum made in the form of a lady's must-box, with a handle at one end, an iron pegg at the other, and a latch-door in the middle. By this door you introduce the coffee, which you sasten in by means of the latch. Then proping it on the top of a chassendish made on purpose, in which there is a charcoal fire, you roast the coffee by turning the drum over

it with the above-mentioned handle; and thus the cof-

fee roafts in the most regular manner.

3. When the coffee is roafted, you grind it, in small mills which are made purposely for it, and the powder you keep closely confined in a leather bag, or better still, in those leaden boxes of Germany with a screwing lid. However it is still much preferable to grind no more at a time than what one wants to use at once.

4. The liquor of coffee is made by putting one ounce of that powder to three quarters of a pint of boiling water to make three full dishes, or four small ones of coffee. And, after an infusion of five or ten minutes, during which it is kept boiling, the coffee is

fit for drinking.

5. Observe that the strength of the powder occasions an efferversence in the water when you put it in boiling; therefore to avoid that inconveniency which would procure the loss of the most spirituous part of the coffee, you must take the water from off the fire and pour some into a cup first, before putting the powder into it, then stir with a long handled box spoon, the powder in the water, avoiding to touch the bottom of the coffee pot, which would immediately make it rise and run over. If however, it should mauger all your cares, you then stop it by pouring on it the water which you spared on purpose for it in the cup from the beginning. Then, bringing it to the fire again, you let it boil gently, as we faid before, the value of five or ten minutes.

6. There are nice people who, not content with this plain way of preparing the liquor of coffee, make the following additions to it. First, they pour it clear from its ground into a filver, or other coffee pot; and, taking red-hot tongs from the fire, melt between them, over the liquor of coffee, two or three large nobs of fugar, which drop from the tongs into it; then they extinguish the tongs themselves in it afterwards. This ceremony gives it, it must be confessed, an admirable flavour and most agreeable taste. Some put superadditionally to it again one spoonful of the most perfect distilled rose-water. This last is excessively good for

head-akes, if, while boiling hot, filling a cup with it and putting a tea spoonful of rose-water, you set your-felf a-breathing the sumes: and, in order to breathe them more perfectly, throwing an handkerchief over your head; and letting drop over the cup, bring it round again to you, while you keep your nose over it. Thus you prevent the evaporation of the sumes, and gather them all yourself. There is not so strong a head-ake which can resist this operation.

LXXXVII. Directions for the preparing of tea.

We should not have offered to speak here of the method of preparing the liquor of tea in a nation wherein the ladies make it one of their chief talents and most delightful past-time and amusement; and where it is so generally used, and become in some measure, fo necessary an evil, that such people might be found amongst the lower class as would rather renounce one. meal than go without their tea even in the afternoon. But we have to mention two different methods of preparing that liquor, after the Japanese fashion, whence the best tea comes, which, to say but little of them, feem not unworthy of our notice, and, to do full justice to them, may be faid to have right to claim preserence over the English method; the one for its fuperiority in point of flavour; the other for its advantage in point of ceconomy.

1. The first method is to put in a bason whatever quantity of tea you like: then, pour boiling water over it: and, after having covered it a reasonable time, drink it out of that very same bason, without ever adding any fresh water to the tea which remains at the bottom.

2. The second is practised by the economists, who, in order to spare the quantity without losing any of the slavour, reduce the tea into an impalpable powder. This powder being put in the boiling water, incorporates with it in such a manner that it seems as if it tinged it only, since nothing subsides at the bottom. By this means it is evident that a much smaller quantity is required of this impalpable powder than of the leaves themselves: therefore that one pound must go infinitely farther, which must be of some advantage in a

country where duties are fo immense on that comodity.

3. The French, who have no notion of making tea one of their amusing entertainments and periodical object of visiting, have a very bad method of making it. As they never use it but on physick days, and as a physick itself, they indeed make it as they would any preparation of that kind. In a coffee-pot they boil first their water; when this does boil, they put in their intended quantity of tea, and let it throw one or two bubbles, then take it aside from the fire to let it insuse about half a quarter of an hour, after which they drink it by basons full, as here we do water gruel, to assist the physick and promote its effect.

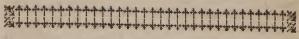
Note. Those who are not used to the regular and daily drinking of tea, have not a finer and more powerful remedy against indigestions caused by repletion of the stomach, or excess of eating. One bason, or two, of very strong tea, drank hot, will, in less than half an hour, unstop all the conducts, and free all the passages.

LXXXVIII. A receipt for making of chocolate.

I. Dissolve in a copper pan some pulverised royallump-sugar, with a little orange water. When the sugar is turned into a syrup throw in the cocoa, the vanilloe, the cinnamon, Mexican-pepper, and cloves, all, and every one of which, ought to have been first reduced into an impalpable powder. Stir all well while it boils; and when you judge it to be sufficiently done, pour the passe on a very smooth and polished table, that you may roll it and give it whatever form and shape you like.

2. To drink it you prepare it with either milk or water, in which, when boiling-hot, you first dissolve it, then, with a box-mill, made on purpose, with a long handle, you mill it to froth in the pot in which it is a-making,

and pour it afterwards in cups to drink.



### C H A P. XII.

SECRETS relative to the CONFECTIONARY.
BUSINESS.

I. Preserved nuts.

ATHER the nuts at Midsummer, or thereabouts, that is to say, before the woody shell begins to harden under the green rind. Cut open and throw off that green rind: and throw immediately, as you do it, the nut into a pail of cold water, to prevent its blackening. When all are ready, boil them four or five minutes, and throw the first water away because it is bitter. Put fresh water which boil again and throw away as the first, and repeat this operation, a third and fourth time, if required, to take off all the bitterness of the nuts.

2. After they have boiled in their last water, take them out and throw them into cold water for sear they should turn black still. From this water change them again into another, cold likewise, in which you are to put them one by one, as you take them from the first, and pressing them between your singers to purge them from all the bitter water they might still contain.

3. Now make a fyrup as usual, in which boil some lemons peels for the sake of fragrancy only, taking them all out after a few minutes of their being in, then put the nuts in their stead which leave to boil in the

fyrup as long as you think proper.

Note. Some add a few cloves in the fyrup; but they should be very sparing in doing it as this ingredient might tinge the nuts in black.

II. Orange-flower paste.

1. Boil in four quarts of water one pound of the bare leaves of orange-flowers well picked. When these are deadened and softened by this boiling, take them out with a skimmer, and set them to drain.

Then pound them in a mortar with the juice squeezed out of two lemons, more or less according to your taste.

2. In the juice, which shall come from these flowers by pounding, dissolve one pound of sugar, and put the passe in. Stir it a little, then let it cool, and shape it afterwards to your liking.

III. Paste of Jessamine.

Have one quarter of a pound of jessamine flowers, and pick them. Boil them next in water till softened, and they have given their odour to it. Then take the flowers out, which drain, and pound afterwards in a marble mortar. Put sugar in the water, and boil it to a syrup; put the passe and spirit in, while it boils for two or three minutes. Now take it out and shape it as you would like to have it.

IV. Apricot paste.

Boil one pound and a half of sugar into a syrup. Put in three pounds of apricots, deterged of their skin, and pounded in a marble mortar, etc. Then proceed as above for the rest, observing only to chuse the ripest apricots you can find.

V. Currant Paste.

1. Weigh ten pounds of currants, which put into a pan with one of clarified sugar. Skim them while on the fire, and after they shall have boiled a while, drain them on a sieve, then strain them.

2. Now put this liquor again in the pan and boil it, adding more fugar in powder, till confumed and wasted to the consistence of a paste. Then form the paste in

the shape you like.

VI. \* A verjus-paste.

Chuse verjus half ripe; cure it from all stones, and put it in a pan on the fire with a pint of water to every three pounds of fruit. After five minutes boiling take it out and drain it. Squeeze it through a fieve, then

<sup>&</sup>quot; See p. 174. Art. xviii.

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waste it to thickness for a paste. Now boil as many pounds of pulverised lump sugar, to a syrup as there are of fruit. When done, abate the fire, and add the fruit paste to the fyrup, continuing to concoct all together on that mild fire for a while. Then give the paste, as foon as it is come to a proper confistence, what shape and form you like.

VII. How to make fyrups with all forts of flowers, whichshall be possessed of all their taste, flavour and fragrancy.

1. Heat in a pan about half a pint of water, then put in it fugar in the proportion to the quantity of flowers you may have; boil, skim and thicken it to a proper considence. When done put your flowers in a glazed veffel, and cover it over with a linen, thro' which pouring the syrup, you strain this upon the flowers. These being thereby quite deadened, put all together again in the same piece of linen, and strain it again in another vessel squeezing well the flowers. Then bottle this fyrup, and keep it for use well stopped. - Whenever you want to give the flavour of those flowers to any liquor, you sweeten it with this syrup.—To every four ounces of flowers, the quantity of fugar requifite to make that fyrup is generally one pound and a half. -Observe that all flowers whatever must be well picked of all their cups, staminas, &c. and nothing but their leaves ought to be made use of.

VIII. Raspberry syrup.

Mash the raspberries, and dilute them with a moderate addition of water, then strain them to divide the thick from the clear part. To every quart of this clear liquor put one pound of lump sugar pulverised, and boil all together on the fire in the preserving pan. Skim and clarify carefully the fugar, according to art with the white of an egg beaten in water. When the fyrup is come to its right degree, (which you may know if, by throwing a drop of it in a glass of water, the drop sinks whole to the bottom, and fixes itself there, without running out along with the water, when you throw this away); take it off from the fire, and let it cool IX. Apricottill fit for bottling.

IX. Apricot-fyrup.

Cut in small bits six pounds of very ripe apricots, which boil afterwards in a gallon of water till they are all reduced almost to a pulp. Let them cool, then squeeze them through a sieve. Now strain again this liquor through the jelly-bag, and put it in the preserving pan on the fire, with four pounds of sugar. Skim, clarify, and boil the whole to a syrup, which try as above-directed in a glass of water; and, when done, letit cool, and bottle it to keep for use.

X. The verius fyrup.

Have verjus in grapes, which pick out of its stalks, and pound in a marble mortar. Strain it through a fleve first, then through a jelly-bag to get it finer. To two quarts of this juice, which put into a preserving pan, add four pounds of sugar, and boil it according to art to a syrup.

XI. A general manner of making fyrups, applicable to almost all forts of fruits, especially currants.

Pick a quantity of red currants of all their stalks, and squeeze them through a sieve in a commodious vessel. Carry this vessel to the cellar placing it on a stool, or any suspended shelf from the ground; and, after that juice shall have worked three or four days, strain it through a sieve in another vessel, then through the slan-

nel bag to get it as clear as possible.

2. Now for every two quarts of fuch liquor, have four pounds of fugar, which put in a preferving pan, and melt over the fire, with a little common water to help the diffolution of it. Boil it thus to the confiftence of caramel, without however burning it; and, when at that degree, pour through the holes of the skimmer, the measured liquor which you must boil also to a perfect fyrup according to the afore-prescribed trials.—All this being well executed, take it off, let it cool, and bottle it for use.

Note. All forts of syrups, such as cherries, raspheries, and others, may be made in the same manner, with this difference only, that they are not to be put to

work in the cellar, but employed directly as foon as the juice is squeezed out of the fruits.

XII. To make liquid currants-jam.

Pick four pounds of currants, and clear them of their stalks. Put aside two pounds and a half of them in a dish, and squeeze the other one pound and a half remaining. Now, in a preserving pan, dissolve four pounds of sugar; and, when come to a syrup, put in the two pounds and a half of whole currants along with one pound and a half of juice of the same, which boil all together to persection.

XIII. To make the same with cherries.

Have two pounds of the finest cherries, from which take off both tail and stones. Press out the juice of them, and put it in a preserving pan with a pint of water, and sour pounds of sugar. Boil all together to thickness, then add six other pounds of the finest cherries, from which the tails only, and not the stones, have been picked. Boil all to a syrup, and when this stands the trial of the glass of water, as mentioned above, all is done, and sit for potting.

XIV. Another way to preserve cherries, with or without

Put eight pounds of cherries, either with or without their stones, in an earthan pan over a very moderate charcoal fire, to evaporate their superfluous moistness; which to obtain, you keep incessantly stirring, taking care to avoid mashing them. Then add four pounds of lump sugar pulverised, in which continue to stir the cherries, and boil all so that the bubbles should cover the fruit, and that the syrup might hereby be skimmed till done to persection, which you know when a drop of it put on a plate runs with difficulty, being cold; then the cherries are sit to pot.

XV. To make the liquid rafpberry jam.

Boil, to a strong syrup, four pounds of sugar. When done, take the pan out of the fire, and put in four pounds of raspberries well picked, and not mashed in the least.

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Put them in gently at first, and with a very particular care, for sear of squeezing them; for, when the heat of the syrup has once seized them, they are not so apt afterwards to break. Stir them therefore a little in the sugar, and when they have thrown in their juice, put them again on the fire, to compleat and perfect the making of the syrup, according to rules and proper trials.

XVI. The verjus jam.

1. Open four pounds of verjus in grapes, with a penknife: and, with the fame, pick out all the stones. Throw these grains, as you do them, into a bowl of clean and fresh water. When all is done, take them out again with a skimmer, and put them a-draining in a sieve, whence throw them next into a pan of boiling water.

2. While this is in the water, let it not boil but only fimmer; and, when the verjus begins to swim on the top of the water, take it off directly from the fire, and cover it with a cloth to cool gently, while you dissolve, boil, and clarify four pounds of sugar to a syrup.

3. A little while before the fyrup is ready, fet your verjus a-draining in a fieve, then throw it in the fugar, when this is done to the proper degree. Continue to keep up a gentle and regular fire, till you fee the verjus taking a good green: and, when that is the cafe, give it a good brisk fire, and finish it quickly, else it would first turn black, and then yellow.—Take care also not to do the syrup too much, for it would be apt to candy.

XVII. The same with powder sugar.

t. If you want to do the same with powder sugar, after the verjus is picked, and the stones taken out as before, it must not be thrown in the cold water, but in a dry preserving pan only, not to lose the juice which comes out of it when cut.

2. Then to every one pound of verjus, add another of fugar, such as we mentioned, you powder this over the verjus which is in the pan, and set all on a gentle sire, on which it can only simmer and not boil. This

will make it come very fine and green, when you must, as in the preceding receipt, be very expeditious in finishing it, for the same reasons therein mentioned already.

XVIII. Peeled verius.

Peeled verjus is made as follows. Chuse some fine ripe verjus, which peel carefully with the point of a penknise and stone, then throw into a dry bowl, to preserve the juice.—Then dissolve, boil and clarify, according to art, as many pounds of sugar as you have of fruit, in which, when done to the consistence of a syrup, throw in the verjus from the bowl. Stir and boil it gently, till it turns green, and sinish it with speed. Let it cool, and put it in very dry pots.

XIX. To preserve March, double or single, violets. Have one pound of violets, gathered on the same day, before the rising of the sun; and pick them well of all their tails and green which is about them. Then make a syrup with two pounds and a half of sugar clarified, &c. In this syrup, while boiling, throw the violets and plunge them all well under the rising bubbles of the sugar. Let them not boil more however than sive or six minutes, for fear they should lose their colour. And by this method they are done to persection for them who want a liquid preserve. But whoever wants a dry preserve of the same, must attend to the following prescription.

XX. To make a dry preserve of the same violets.

When you want to make a dry preserve of March-violets, whether double or single, you must, as soon as they are come to the degree we just now mentioned to make them liquid, take them out immediately from the fire, and, while the sugar is still boiling, take the violets out of it with a skimmer, and put them a-draining in a sieve, calendar, or table cloth, till they are cold. Then put them in another pan over a very flow charcoal fire, stiring them incessantly with your hand, for the space of two hours, or thereabouts, and powdering over them, at distances of times, some of the finest

finest royal loaf sugar, in small quantities at a time, in order to dry and candy them.

XXI. Another way to make them liquid.

If you want to make the best use of the same clarified sugar, which served to make dry preserved violets, you may do it by putting half a pound, or thereabouts, of these slowers in the same syrup then boiling on the sire, and there let them soak and lyc for sive or six minutes, they will then be liquid as in Art. xix.

XXII. To preserve apricots, when neither too ripe nor too

Chuse a quantity of apricots, just turned, but not ripe, and the fruit of which has fill all its hardness and greenness. Take out the stones, by means of a smallbladed-knife, or flick, which introduce at the point of the apricot, till you feel the stone, and then push to make it come out at the tail. When you have thus prepared four pounds of them, (weighed after stoning) have a large and wide pan of boiling water on the fire. in which throw them in order to blanch them, taking great care that they should not spot in the water. When blanched, take them out with a skimmer, and fet them a-draining on a fieve. Then boil and clarify four pounds of fugar, and make it into a fyrup. When done, take it out, and put in your apricots softly, one by one. Then fet them again on the fire, and give them two or three bubbles. As foon as after which, take the pan from the fire, and let them cool. By this means they throw off their superfluous moistness and take the fugar. A certain while after, that is, when cold, take them from the fugar with a skimmer, and for them adraining, while you put the fyrup on the fire to boil. When drained, put them again into the boiling fyrap, and give them five or fix bubbles more, after which let them rest two or three hours in the syrup as they are, or even till the next day if you like it, at the end of which term you must put them again on the fire, and finish them. They will be what is called Liquid, and you may pot them in that flate. XXIII. How

XXIII. How to make a dry preserve of them.

When you want to make them in dry preserve, or what is called mi-fucre, you must always proceed from beginning to end as above-directed, till the time they are fit for being potted in liquid, instead of which you take them again once more out of the fyrup, and fet them a-draining, then range them on flates at regular distances, so that they may not touch one another. When thus prepared, powder on them, through a filk fieve, some of the finest loaf sugar pulverised, and put them in the stove to dry. When dry on that side, take them out from the flates, and turning them the other fide upwards on a fieve, or some forts of small light willow grates made on purpose; powder them again with fugar as before, and when equally dried and cooled, you may put them in boxes with white brown paper.

Note. Some like to have them done in halves, otherwise called, in genteel term of art, en-oreilles (in ears), which changes nothing in the process of the operation, but that of opening them in two from the beginning. -All forts of plumbs, and the peach, admit of the fame mode of operation, to make them into dry or liquid pre-

serves, either whole, or in ears.

XXIV. To preserve green apricots.

1. Gather yourself your apricots when green, that you may be fure they are all very fresh, and have not had time to wither. Then pound some salt in a mortar and make it as fine as you possibly can, and putting a handful of this falt in a napkin, with as many apricots as you think you can well manage; fold the napkin lengthways, bringing the long sides of it over the apricots, and taking the ends of it gathered one in each hand, shake and roll them backwards and forwards with the falt in the napkin, adding one spoonful or two if requisite, of vinegar, which pour over them when thus agitated. This process is with intention of curing them of their down, and when that is obtained, throw them in cold water to wash them well, and continue so to do with the rest, till they are all done.

2. After having thus well washed them in that first

water,

water, put them into new cold water, to wash them well in it over again, after which put them a-draining on a fieve. Then boil fome water, and throw them in, wherein they are to be kept boiling till they become foft, and which you take care to try now and then, by taking one or two with the skimmer, and thrusting in a wooden toothpick, or very fine skewer; if this get an easy admittance in the apricots, they are sufficiently done. Now take the pan from the fire without delay, and, with the skimmer, take the apricots from that boil-

ing water into some cold.

3. When your apricots are in this fituation, make a fyrup, by diffolving, boiling, and clarifying, according to art, as many pounds of sugar as you have got fruit, and, having put in your apricots, let them boil very gently. They will immediately turn of a very fine green. You must not press on the finishing of them; on the contrary, take them off from the fire, and give them a couple of hours rest, during which they foak in the fyrup, throw off their moistness, and take the sugar. After they have thus rested a while, set them again on the fire, and finish them as fast as you can, that they may preserve their greenness.

Note. There are some people who get the down off the apricots by means of alve made with greenwood, or pearl, ashes, in which they wash them once first, and then twice afterwards, in other pure and clean cold water. But the first method we have recommended with falt, is the best, the most expeditious, and that which procures them the finest green .- When you want your preserve to keep, you cannot do your syrup with less than pound for pound of sugar with fruit; but if

they be not to keep, a little less may do.

XXV. To make the Cotignac liquid.

Suppose you to have fifteen pounds weight of quinces, you must have three pounds of sugar, and a gallon of water, all of which you manage as follows.

1. Pare the quinces and cut them small, after having taken away the cores and kernels. Put your gallon of water a-boiling, then put them in, and let them boil there, till reduced almost to a pulp. Strain all. through.

through a cloth, and squeeze it well into a bowl. When done, set it on the fire in the preserving pan, with sour pounds of sugar, and boil it gently, till taking some with the skimmer, and letting it sall on a plate, it shall rise up like a jelly. Then push on the fire, and in five minutes afterwards the cotignac is done.

Note. If you put the peel and kernels into a knot, and boil them in that manner in the water, the jam will

sooner be red.

XXVI. Another way.

Pare four pounds of quinces, which cut into bits, and put in the preferving pan, with a sufficient quantity of water to soften them by boiling gently. Then add sour pounds of lump sugar, and continue boiling the whole till it is half done. When this is the case, strain all through a calendar, and put it again in the same pan over the fire to boil it to perfection, which you know, when by stirring the jam hard, you may see the bottom of the pan quite plain, and entirely uncovered. Then it is time to take the pan from the fire, to let it cool and pot the marmalade.

XXVII. How to make the caramel.

Boil some sugar, till it be almost in powder; then, for every half-pound of sugar, throw in one ounce of syrup of capillaire, and immediately throw the whole into cold water.

XXVIII. To make Raisinet.

Take any quantity of black grapes, the best and the ripest. Pick the grains from the stalks, throw away these, and squeeze the others between your hands, and put both the hudds and the juice in the preserving pan, to boil on a clear and smart fire. Neglect not to stir well this liquor, all the while it is a boiling, with a wooden spatula, for sear it should burn at bottom. When you perceive it may have wasted a third, or thereabouts, strain it through a sheer-cloth, to express well all the juice out of the hudds, which last throw away. Put your juice again into the pan to boil, and skim it stirring as before with the spatula, especially towards the end when it begins to thicken. To know when it is done,

put some on a plate, and if, by cooling it becomes solid, it is a sign it is quite sufficiently done. Then is the time to take it off from the sire, and let it cool, after which you pot it into stone jars.

XXIX. To preserve quinces in red.

1. Chuse the most even quinces not stoney, and vulgarly called semale quinces. Cut them into sour, or eight quarters as you like best, then pare and core them. If you meet any stones in the quarters cut them off too. In proportion as you prepare them thus, throw them into cold water. Save the peels and cores; and, mixing among them, when all your fruits are prepared, such of them as are small, crooked, and otherwise ill formed, and unfit to go along with the others, boil all in a sufficient quantity of water to make a strong decoction, which pass when done, and strain through a strong cloth into a pan.

2. In this decoction, put your other quarters, and boil them in the preserving pan. When sufficiently done, put as many pounds of sugar as you had fruit, or three quarters of a pound at least. Boil this gently, and in a short time the quinces will become most beautifully red. When you see they are come to perfection, take them off the fire, and pot them; but do not cover

them for a day, or two, after.

XXX. To do the same in white.

1. To do the same preserve in white, you must not make the decoction of the parings. On the contrary when the fruit is pared and prepared as before mentioned, you must throw it into boiling water, and there let it continue to boil on the fire, till sufficiently done: then, take it out with the skimmer, and put it a-draining on the sieve.

2. While they are thus a-draining, make a fyrup; and, when this is skimmed & clarified properly, put your fruit in it boiling. Ten minutes after, or there-abouts, take the pan from the fire, and let all rest a while, then squeeze on it the juice of a lemon to whiten the quinces: and, setting them again on the fire, finish them quickly.

XXXI. To preserve Rousselet, Muscadine, and other

forts of pears.

1. Chuse Rousselt-pears, which should be neither too ripe nor too green; which pare very neatly, and boil in water till properly done. Before boiling them, observe to strike them to the heart from the head, with the point of a knife. When properly done in the boiling water, take them out with the skimmer, and throw them into fresh water.

2. Make next a fyrup, with as many pounds of sugar as you have pears, in which you put these and boil them sive or six minutes at first, then take them from the sire, and let them rest a while to throw out their superstuous moistness, and take the sugar. When that is done, set them again on the sire, to compleat them quickly.

Note. By doing as above, you will have a liquid preferve of pears; but if you want to have them dry, follow the directions given in Art. xxiii. with respect to

apricots.

XXXII. A preserve of green almonds.

1. Prepare a lye of pearl ashes, in which wash your almonds to rub their down off. Wash them next in another common clean water, whence throw them into boiling water, in which they are to boil till softened, so as however, not to open themselves, and which you try now and then, by thrusting a pin or a fine skewer in some of them. When done enough, skim them out from this water, and throw them into cold, then set them a-draining in a sieve.

2. Now make a fyrup, and throw your almonds in while boiling. They will immediately recover their green; then finish them as expeditiously as you can, for fear they should turn black.—If you want to keep them, you must put pound for pound of fruit and su-

gar.

XXXIII. To make the same into a compote.

To make a compote of almonds, you must, after having softened them by boiling in water, put no more than five or fix ounces of sugar to every pound of fruit. Then boil the syrup into a pretty strong confisence, because

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because it liquisies sufficiently afterwards by the moist-

XXXIV. To make dry portable cherries.

Prepare four pounds of fine Kentish cherries, by depriving them both of their stones and tails. Then have one pound, or one pound and a quarter at most, of sugar, which put a-dissolving on the fire in a point of wa-When this begins to boil, throw your cherries quickly in, and make them boil thus in the fugar about one quarter of an hour, or till the fyrup begins to thicken. When they are sufficiently done, take all off from the fire, and let cool, after which put them adraining in a fieve; then, putting three or four of them one in another, range them on flates, and powder, through a fieve, some sugar all over them, and place them in the stove, or, for want of this conveniency, in a baker's oven, after the bread has been taken out. No fooner they are dry on this fide, but you must turn them all on the other, and powder them over with fugar as you did before; dry them also in the same manner, and box them when cold, to keep for use.

Note. Plumbs may be done in the same manner. This fort of preserve is very agreeable, and may be carried any where. Few persons are acquainted with the me-

thod of making it.

XXXV. The preserve of orange-flowers, whether in loose leaves, or in buds, or even in grapes or bunches.

Have four or five pounds of orange-flowers; and that you may lose nothing, but on the contrary, make the best you can of them, put them in alembic with two gallons of water. Lute well the vessels, and distil about two quarts of good water. Stop then the distillation, let the vessel cool; and, unluting them, put the orange-flowers a-draining on a sieve. When done, throw them afterwards in cold water, squeezing over them the juice of a small lemon to whiten them. Now take them out again from this water, and put them in a very light and thin syrup, not much more than lukewarm, for them to take the sugar. When all shall have become quite cold, skim the flowers out of this syrup, and set them a-draining in a sieve placed over it.

After they are well drained, boil that fyrup for five or fix minutes, then let it cool again, till only lukewarm, and then put your flowers a foaking again for twentyfour hours in it. On the next day skim, them off again and repeat the same operation over again exactly as you did the day before. At last skim them out once more from the fugar, and put them a-draining for the last time, after which scatter them on tin sheets, flates, or finall boards, and having powdered them over with fugar, put them a-drying in an oven; when dry on this fide, turn them on the other, and repeat the same again; till all is done, and fit to put in boxes.

XXXVI. A marmalade of orange flowers.

1. To make a marmalade, or jam, with the same sorts of flowers, take one pound of them, which wash and dry in a cloth, and having put them in a mortar, give them a few strokes of the pessle only to bruise them a little, not to mash them quite, and to whiten them

squeeze the juice of a lemon over them.

2. Now clarify three pounds of royal fugar; and, when come to a proper fyrup, throw in your pound of orange-flowers, which boil in five or fix minutes, and let cool. When cold, stir all well with a spatula, in order to mix well, and equally, the flowers along with the fyrup, then put the jam into pots; and, having left them twenty-four hours uncovered, paper them over as usual.

Note. They who have no alembic, being deprived of the opportunity of having orange-flower water, must boil their flowers in a large quantity of water in the preserving pan, and when done, change these slowers immediately into cold, or some other boiling water. These flowers will assume a greater whiteness if you squeeze the juice of a lemon into this second water. Then drain it, and proceed for the rest as directed in. the preceding article.

XXXVII. To make an apricot, or peach, jam.

1. Chuse the ripest apricots, which clean of all hard knobs, spots, and rotten parts. Cut them in small bits in a preserving pan, which you have previously weighed. If you have put four pounds of apricots in

it,

it, reduce them by boiling over a gentle fire to two pounds only, which you must find out by weighing pan and fruit together, now and then till you find your right weight. When this is the case, put among your apricots thus reduced to one half, two pounds of lump sugar pulverised, and mix all well for the space of five minutes over the fire, then take all off, let it cool, and pot.

2. This same composition, you may, if you will, put into paste on slates, or in tin moulds. There is not more exquisite eating. You may also, with two or three roasted, or baked, apples, mix a couple of spoonfuls of this marmalade, and make excessive nice tarts with it, or again with pears baked under ashes, nothing

can be more delicate.

XXXVIII. An apricot jam, after the French way.

1. Chuse such ripe apricots as are fit to eat. Peel their skin off very neatly, and give them a bubble or two in boiling water, so as not to have them dissolve however in the water, and put them a-draining. When done, mash them through a sieve, and let them rest a certain time to evaporate their supersuous moistness.

2. While this is doing, make a fyrup with as many pounds of fugar as you have fruit, and take it off from the fire; when the fyrup is cooled, put your fruit in, which stir well with a spatula, then put all again on the fire for ten minutes in order to make the fruit take well the fugar. When the jam is well done, fine and transparent, you pot it.

XXXIX. To make rafpherry, currants, and cherry jam.

All these fruits must be squeezed through a sieve, then clarify the sugar, and throw in the juice, which you bring to persection asterwards as directed in the last

receipt.

These jams may also be made into paste; and, if you require to have them clearer, more pellucidous, and susceptible of drying quicker, you may put a quarter of a pound more sugar, than the prescription, to every one pound of fruit; but it must be confessed that the paste will so much less have the slavour of the fruit.

XL. To

XL. To make a good currant jelly.

Have four pounds of currants after picking. Then, dissolve in water sour pounds of loaf sugar, which make into a pretty strong syrup. Now, put the currants in, and boil so hard as to have them all over covered with the bubbles. Six minutes after such boiling, take the pan off from the fire, and pour the contents in a sieve to strain off all the liquid. Put this liquor again in the pan and boil it, till taking a drop with the skimmer, and pouring it on a plate, it congeals as it cools. Then it is sit to pot.

They who want to spare the sugar, and have a great deal of jelly at a smaller expense, may employ four pounds only of sugar to six of currants, after picking, and proceed as above. They must however observe to do the jelly rather more than in the preceding case, when the fruit and the sugar are put pound for pound.

XLI. To make a verjus jelly.

Take ripe verjus which pick from its stalk. Put it in a pan with a couple of glasses of water. Let it boil for two or three minutes, and when deadened, throw it in the sieve to drain. Then put the juice on the fire with the sugar, and boil it into a jelly, to pot it afterwards.

XLII. To make an apple jelly.

1. Cut in small bits a dozen of gold rennets, and put them in the preserving pan, with three or sour quarts of water, which boil to the reduction of one half. Throw all in a cloth to strain it through, and draw all the juice from the apples. Then, to this, put sour pounds of sugar which boil to a jelly.

z. To give a pointe to that jelly, you may add the juice of one lemon, and even the rasping of one half of

its rind.

XLIII. To make the conferve of orange-flowers.

Take one quarter of a pound of orange flower-leaves well picked, which chop as small as you can, and wet over by squeezing the juice of a lemon. In the mean while clarify, and make into a strong syrup, two pounds of sugar; then take it off the fire and let it rest a while. Some time after, sir it all round, and in the middle, with

with a fpoon; and having thrown in your orange flower, prepared as before directed, mix all well with the same spoon and put part of this composition in o paper moulds, or cases, and form the rest into drops, or lozenges, on sheets of paper.

XLIV. A conferve of violets.

Pound in a mortar one quarter of a pound of violets well cleanfed and picked, which, while you are a pounding, you must wet with a quarter of a pint of boiling water. When it is thus wetted and pounded Brain it through a fiannel cloth; then having melted and clarified two pounds of sugar into a strong syrup, take it off the fire, let it rest and pour in asterwards what you have expressed from the pounded violets, stirring all well together with the spoon, and proceed, in every other respect for the rest as directed in the precedent article.

XLV. A conferve with raspings of Portugal oranges and lemons, conjointly or separately.

Put your raspings to dry in a plate whether silver or china, it does not signify. Prepare some sugar into a svrup not quite so strong as recommended in the two last receipts. Take this from the fire, and sir it with a spoon, both round the pan and in the middle; then throw in your raspings of lemon or orange, or even both together; and, having stirred all well, put it in the moulds and make your drops.

XLVI. To make almonds a-la-praline.

Make a strong syrup with one pound, or one pound and a quarter of sugar. Then throw in two pounds of almonds, which stir well with a spatula, for fear they should stick to the pan. Therefore stir them well till they have consumed all the sugar; then place them over a small stire to dissolve all the little knobs of congealed syrup which remain about the pan, and stir it till there is none less, and all should absolutely stick to the almonds. Have a great care that they should not turn into oil, and take notice when they pop, because it is a sign they are done. Take the pan from the fire, and

and cover them with a cloth; and, when cold, put them in boxes.

XLVII. To whiten cherries, currants, raff berries, grapes, frawberries and other fuch like fruits.

Beat one, or two, whites of eggs with orange flowerwater, then steep your fruit in, and roll it afterwards in a dish wherein there is lump sugar pulverised and sisted very fine. When it is well covered over with sugar, put it on a sheet of paper and set it in the sun, or before a clear fire, and at a certain distance of it, only to dry it. You may thus ice all sorts of fruits susceptible of icing.

XL. VIII. To make iced maroons.

Slit the bottom skin of every one of your chesnuts, and losen it at that part without peeling them yet. then throw them into boiling water. When you think they have boiled sufficiently take a few of them and try whether or not a pin gets eafily into them by the 'flit you have made. If it do, take the maroons from the fire, then peel them one after another as expeditiously as you can while still burning hot, and put them in a dry fieve. In the mean while, boil some new water, and when all are peeled, put them all into it, to make them throw all their reddish liquor without putting them any more over the fire, but only and meerly into the boiling water which you just took out, when they have well cleanfed themselves in this water, take them off with a skimmer and put them in a light thin fyrap, in which boil them gently for ten minutes, then take them off the fire, let them rest so that they may take the fugar, then skim them out of it and put them in a fieve to drain. Now add some more clarified fugar to your thin fyrup, which boil together to a stronger one: then put your maroons in, one by one, fet them on the fire again, and boil all till the fvrup comes to be what confectioners call a-la-plume. take them off the fire, and let them rest. Some time after, take a spoon and cause a certain agitation with it in the fyrup by ftirring it on one fide of the pan fo as to cause a thick and muddy look in the syrup no farther than the width of your hand. While the forup looks

looks thus, take your maroons gently one by one between two forks, and fauce them well in that thick part of the fyrup, then put them on a fieve over a dish.

XLIX. To make the Royal-massepins.

1. Take one pound of sweet almonds which throw in a bowl filled with boiling hot-water, to help the peeling of them. In proportion as you peel them, throw them into another bowl filled with cold water. Then drain them, and pound them in a mortar, watering them at the same time so as to make them into a kind of paste. Now put in the preserving pan one pound of fugar with a sufficient quantity of water to dissolve it. Boil it to a-la-plume, and then take it from the fire to dilute your paste into it. Set the pan again on the fire, and turn your paste over and over till it quits the pan freely without any adhesion at all. When, paffing your hand on the pafte, you fee it smoothening without flicking to your fingers, it is a proof that it is done. Now take it from the fire, and dress it with your spatula on small boards covered with sugar, in the form of small oblong cakes of what fize you like.

z. When the paste is all employed and dressed in that form let it grow quite cold. Then take every one cake one after another fingly, and give each of them by itself half a dozen of strokes of the pestle in a mortar to render that paste more delicate, adding also as you pound it thus, half the white of an egg or a whole one if requisite, per pound or pound, and a half, of paste. You may likewise, if you chuse, introduce in the paste, while you pound it, a little orange or lemon peel preserved. Then you roll it again in the pulverised sugar, and dress it again on the same boards as before either in oblong cakes, or in round rings. When done take and fleep it in whites of eggs beaten with orange flower-water; and, draining it well when you take it out, roll it again next in pulverised sugar, then put it on a sheet of paper. When every one has thus been worked all through this procels, put the sheet of paper, thus loaded with these massepins,

massepins, in an oven, so moderately hot as not to affect them too much, and give them only a very faint

colouring.

3. They who want their massepins to taste of the bitter almonds, may introduce one quarter of a pound, or even half a pound of bitter almonds among the pound of sweet ones, from the very beginning and for the rest, proceed as directed from the time of peeling.

#### L. To make Savoy biscuits.

1. Separate the whites of four eggs from their yolks. Beat them by themselves to a very hard froth, at which time, you then put the yolks previously well diluted, and continue beating all well together. Now introduce half a pound of sugar pulverised, and beat them

all together again:

2. When you are ready to dress you biscuits, have a quarter of a pound of superfine flour, which incorporate by beating well, then dress it on a sheet of paper in the form you like best, either round or oblong, and ice them over with sugar in powder to prevent their running. Put them in an oven, no hotter than for massepins; and, after a reasonable time they will be done.

LI. To make bitter almond-biscuits.

Pound in a mortar three quarters of a pound of bitter, and one quarter of fiveet, almonds. When thus pounded, have eight or nine yolks of eggs which beat up and mix with your paste of almonds, and two pounds of pulverised lump sugar. This paste must be a good deal harder than that of the Savoy biscuits. Then, with the end of a knife taking some of that paste, you place it in rows on a sheet of paper, in what form or shape you like, and ice it with pulverised sugar; then put it in the oven as you do the Savoy-biscuits or massepins.

LII. To make meringues.

Beat well into a hard froth, four whites of eggs: then introduce in them four large table spoonfuls of sugar into

into a subtile powder, and a tea-spoonful of orange flower-water, with a little musk and amber prepared. Put this paste on a table, and roll it with the rolling pin to the thickness of a crown piece, or double that thickness at most. Cut it in the form and fize you like, bake it half way, or little more, and take it out. Make a strong icing with the white of an egg, sugar pulverised, and the juice of a lemon, in order to whiten that ice which you thicken as a strong pap by means of the sugar in powder, steep your pieces of cut paste one by one, and set them to dry under the lid of the flove covered with fire, on the top of it.

LIII. The same with cinnamon, or chocolate.

The meringues, with chocolate, or cinnamon, are made as follows. Pound and fift into fubtile powder and distinctly each by itself the cinnamon, and a quantity of the above described paste, after a thorough drying. Then mix these two powders and a discretionable quantity of fugar together in the same mortar, by means of whites of eggs beaten, continuing to pound the whole till the passe be firm and however flexible. Now spread it with the rolling pin to the thickness you like, and cut it in the shape and form you please, then bake and ice it as usual. If you will not have your meringues too hard, bake them on one fide only, and ice them on the other with orange flower-water and fugar. When you dry them let it be with the lid of the flove, and take care not to make the fire too firong, left it should blow the ice. When properly dryed, the ice is as clear and transparent as real glass.

Note. With the chocolate the same process is to be

observed as with the cinnamon.

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LIV. Another way of icing, contrived for the fake of certain scrupulous persons.

For the fake of them who, in time of Lent have some scruple to eat messes wherein their enters any thing belonging to eggs you may contrive the following method of icing. The some gum adragant, which put into a glass tumb! r with a little common water and orangeflower ditto. When perfectly dissolved, strain it through

a cloth, and use it instead of whites of eggs for pounding your paste in the mortar as above directed. Then for the last icing, use orange flower-water and sugar, pulverised as above.

LV. To make gimblettes.

Suppose you take one quarter of a pound of flour, then one ounce and a half of fugar in powder, or two ounces at most, will be quite sufficient with two or three volks of eggs and one white only, then a little orange flower-water, with a very little quantity of musk and amber prepared. Knead all together, so as to make a stiff dough with it; to obtain which you discretionally increase the quantity of flour if necessary. But should it become so stiff that you could not manage it to put in rings; then you must put it in the mortar, and soften it with a few strokes of the pestle and a little orange flower; or even mere pump water. Then you spinit in rings; which, when made, you throw into boiling water and give a bubble or two; and afterwards, drefs it on sheets of paper, and bake it till it is dry and brittle.

LVI. To make biscotins.

Boil one pound of sugar to a syrup a-la-plume: then throw in half, or three quarters of a pound of Stir quickly all together to make a dough, after having previously taken the pan off from the fire, then take this paste out of the pan and dress it on a board, or table, covered with pulverised sugar. Knead it quickly, and pound it next in a mortar with the white or an egg, a little musk and amber prepared, and orange flower-water. When it is thus knead and pounded pretty stiff, make it into small balls of the fize of a small apricot-stone, then throw them into a pan filled with boiling water. First they fall to the bottom: but, as foon as they rife on the top you must skim them out of this water, and put them a-draining in a Then range them on a sheet of paper, or tin, and place them in the oven to bake and make them take a fine colour.

Note. If, when baked, you find any difficulty in ta-

king them out of the paper; wet a napkin and wring it, then fet the sheet of paper on it, soon after they will easily come off.

LVII. To make lemon lozenges.

Take one, or two, whites of eggs, which beat with fome orange flower-water. Then add as much pulverised sugar as they will soak up, to make a pretty stiff paste of it. Introduce also the raspings of lemon peels. All being well incorporated, roll it all into small balls of the bigness of your thumb, which range on a sheet of paper and flatten afterwards a little, then put them in the oven to bake.

LVIII. How to preserve orange-peels all the year round, but especially in the month of May.

Cut some oranges in four quarters and peel those quarters. Then put the peels to foak in water for about ten or twelve days; after which term, dry them between two cloths, and put them in a caldron with a fufficient quantity of honey to half cover them. Boil them thus one minute or two, firring them incessantly. Then take them off the fire, and let them rest till the next day, when you put them on again, and let boil ten minutes er a quarter of an hour. For fix or feven days repeat the same operation, taking great care incessantly to stir, turn and re-turn them all the while they are on the fire. On the eighth day change the honey, and in the fresh honey boil them as long as it would take you to repeat your creed, then pot them with that new honey in which they boiled last, and keep them for use after having added some cinnamon, cloves and white ginger, mixed and both reduced into subtile powder.

LIX. To make a paste with whatever fruit it may be.

Take whatever quantity you please of any fruit, which peel and boil well in water, then strain the juice through a sieve, or a stannel. Now weigh ten pounds of that paste of fruit, and ten more of sugar pulverised. Mix first sive pounds of sugar with ten pounds of struit, and put it a-doing on the sire; then mix sour more

more pounds of your sugar. When done, put with a spoon (on iron plates previously powdered with some of the pounds of sugar which were lest) some of that paste from distance to distance. Set these to dry on a chassendish, in the sun, or in the open air, turning and re-turning them often, and powdering them morning and evening with sugar. When these little cakes are perfectly dry, put them in Dutch deal boxes and in white papers, that they may not touch each other.

Note. In the fame manner you may make the conferve of roles, buglos, burrage, &c. even red cur-

rants.

LX. The Genoa pasie.

Take equal quantities of quinces and odoring apple's pulp. The pulp is prepared thus: peel these fruits, and clear them of their kernels. Then pound them in a mortar with rose water, and strain them through a sieve. Put the passe on the fire to dry by degrees, stirring it all the while with a wooden spatula. Then add as much sugar in powder as you have pulp, and go on in doing it, till it has acquired the consistence of a passe.

LXI. Quinces-jam, and other fruits.

Boil, in a sufficient quantity of water, both the sless and the peelings of your fruits to perfect softness. Then let the decoction clarify in the sun, before the sire, or by residence. When settled, decant it and adding to the liquor the proper quantity of sugar, boil it to a jelly.

LXII. Genoa Biscuits.

Take four ounces of fugar in powder, one pound of flour, a little coriander and antiefeeds in powder, which mix with four eggs and as much luke-warm water as needs to make a dou h of the whole. Bake it in the oven; and, when baked, cut it in five or fix flices which you bake again.

IXIII. The Queen's cakes or biscuits.

Take twelve ounces of flour, one pound of fine sugar in powder, and twelve eggs, from which take out three yolks,

yolks, with a discretionable quantity of coriander and aniseseeds. Beat, and mix well all together, till it comes to a thick but running paste. Some add yest to make it lighter and rise higher. Divide this paste into several paper cases, or tin ones, of the width of two singers and twice as long, which put in an oven to bake: but take care that it be not too warm.

#### LXIV. Macaroons.

Pound well one pound of freet almonds, moistening them with rose-water. Introduce one pound of sugar and beat all well in a fost paste, which you put round a dish and half bake in a luke-warm oven. When the paste is half done, cut it in small round pieces, and having ranged them on a sheet of paper, finish baking them.

LXV. A method of making cakes exceeding fine.

Take two whites of eggs, which beat well to a froth after having taken away their germen. Add one quarter of a pound of the finest flour, and as much sugar in powder. Beat all well and add a little brandy to it and coriander-seed in powder. All being well mixed spread the passe in a sheet of paper, glaze it over with sugar in powder, and put it to bake.

LXVI. Another particular method of making cakes.

Wash and clean well a dozen of eggs and wipe them thoroughly dry. Then break them and take their whites only, which beat in a mortar along with their shells till these latter be perfectly dissolved. Now add sugar and slour, though not so much flour as sugar. When all is well mixed, spread the paste, which ought to be a little sirm, on a sheet of paper; and, after having glazed it, bake it in a slow oven.

## LXVII. A cream made without fire.

Take one quart of double cream, in which, put four ounces of fugar pulverised fine, and the quantity of one thimbleful, or two, of runnet. Stir all round together to mix it more equally and make it take the better. If the runnet be good the cream will take in one hour.

When you are ready to ferve it on the table, rasp some sugar over it, and spill on it a dozen drops of orange slower-water.

LXVIII. A cream which cuts as a rice-pudding.

Beat in a dish two whites of eggs and one yolk, in which, while you beat, introduce by degrees one quarter of a pound of sugar in proportion as it melts, and a pap-spoonful of rose water. When that is compleated, pour in the dish, and slir, a quart of milk and cream mixed half and half, then set it gently on warm cinders to take without boiling nor disturbing it any more. In one hours-time it generally is sufficiently taken. Then you colour it in passing a red-hot shovel over it. It is to be served cold, after having rasped some sugar on it.

LXIX: To make an exceeding good boiled cream.

Take cream or good new milk from the cow which boil with a crum of stale breed rasped very sine, and a little fresh butter. As soon as it begins to quake, sir it continually with a spoon; and, having diluted some yolks of eggs, strain them through a cloth. Put as much salt and sugar in your cream as you think it may require. And, when it boils and begins to rise pour the yolks of eggs is, never ceasing to stir it in order to prevent its rising so far as to run over. As soon as you see it begins to render the butter take it out of the sire; and, to serve it, glaize it over with sugar in powder.

LXX. To make wipped cream.

Take one quart of good sweet cream, in which add one, or two, spoonfuls of orange flower-water and a quarter of a pound of sugar pulverised very fine. Wipe it with a handful of fine white and dry willow twigs tied together on purpose. In proportion as it comes to a froth take it and put it in a bowl, or dishes, to serve it on the table.

LXXI. Another

# LXXI. Another fore of a cream.

Peel and pound as much as peffible, a dozen and a half of bitter almonds, wetting and diluting them at the fame time with a little milk: then strain them through a flannel and put the product of that squeezing among three half pints of good new milk from the cow, with one quarter of a pound of sugar, and a few spoonfuls of orange slower-water. Stir all well together; and, having made it luke warm on the fire, put a little runnet in it, and mix all well. Then fill as many soop plates with it as you have guests, and put them on warm ashes only, covered with another plate, which you now and then use to take up in order to sup the moissness which rises. When the cream is congealed, take it from off the fire and serve it.

This cream is that which is called by the name of cream blanc manger, or cultard, like. It may keep very

well for two days, after it is done.

## §. II. Of Summer Compottes, or stewed fruits.

LXXII. The raspberries compotte.

Boil half a pound of fugar into a syrup to a la plume degree, in which throw one pound of raspberries well pi ked, clean and whole. Take the pan off from the fire, and let all rest. A little while after, shake the pan gently in which the fruit is, and stir it a little, then set it again on the fire to boil sive minutes; after which, take it off again and let it cool before serving. Forget not to skim the fruit well when in the pan. Currants admit of the very same preparation, and by the same process.

## LXXIII. The apricots-composte.

Make a lye with pearl ashes; and, when that lye shall have boiled five, or fix, minutes, put in about a quart of green apricots, which you stir in gently with the skimmer; then take them out and throw them into told water. Clean them well one by one of all their down, and throw them, as you go on, into another cold water. Then boil some water in a pre-

ferving

ferving pan, and put them in to blanch, till you can thrust a pin into them easily. When this is the case pour them all in a sieve and let them strain. Then clarify a pint of syrup; and, when it boils, put in the apricots and boil them gently in that sugar for ten minutes or thereabouts. Then take them out, stir and skim them; let cool and serve.

LXXIV. Another way of doing the same.

Put what quantity you like of apricots in a napkin with a handful of falt, and shake them backwards and forwards length ways, moistening them now and then with a drop or two of vinegar. By these means you take off the down much sooner from them. Then wash them in cold water: boil them afterwards to softness, then skim them out from that water into cold. When they have been there a little while, pour them all into a sieve to drain; then put them in sugar in which they are to boil till they turn green. When they are such, finish them quickly, take them out, and serve.

LXXV. To do the same fruit, as well as peaches,

You may peel them if you like, though they taste more of the fruit when they are not peeled. Stone them, and having splitted them, take the kernels away from the stones. Now, boil into a syrup half a pound of sugar, more or less, according to the quantity of fruit you have to stew. When the syrup is ready, throw in the fruit and the kernels all together; boil all about one quarter of an hour, then take the pan from off the fire, shaking it gently to gather the skum together. Take this out with a card and let your fruits rest a while to throw off their water. When you judge they may have done it, set them again on the fire to boil eight or ten minutes longer; and, if there be any more skum, take it off again, and the compotte is done.

LXXVI. To make a compotte of the fame fruits as above, and even plums, broiled.

Take any quantity of either peaches, plums. or apricots:

apricots: broil them on all fides over a chaffing-dish of bright and live coals. Peel them next as fast as you can, and put them on a filver plate with one handful or two of sugar pulverised, and sufficient water only to help melting the sugar. Set them next on the sire and boil them one minute or two, then take them out and let cool. When you are ready to serve them, squeeze the juice of a lemon, or orange, over them.

LXXVII. To make a compotte of perdrigon-plums.

Take off the skin of about two pounds of perdrigon plums, which throw in the mean while into cold water, then strain it out and put into boiling one for about two or three minutes only after which having taken them out of this water and drained, you range them in three quarters of a pound of sugar boiled into a pretty strong syrup. When they shall have boiled eight or ten minutes in it, skim them, let them cool and serve.

Note. The lit-de-werd-plums are made in the fame way. Whenever a plum is not ripe enough you may let it do a little longer in the water in which they are boiled previous to the fyrup, taking care however they

should not come to mash in it.

LXXVIII. The same for mirabelles, purple and black damask, Sainte-Catherine and other plums.

Take any quantity of the above-mentioned plums, we suppose two pounds. Pass them in the boiling water without peeling them, especially the mirabelles, then put them in a syrup of half a pound of sugar, and finish them like the perdrigons.

LXXIX. Compottes of verjus in grain.

Take a pound or two of verjus in grain and the finest you can find; stone it carefully with the point of a tooth-pick, and throw it in the mean while into cold water. When all is done, take it out with a skimmer, and put it into boiling water. Then take it out from the fire, and let it cool. Skim it out again and put it in a syrup of one pound of sugar, in which boil it gently over a slow fire; and when the verjus begins

begins to turn green, finish it quickly like the other compottes, but take great care not to do the syrup too much.

## LXXX. Compottes of peeled verjus.

Take the skin and the stones out of two pounds of werjus, and put it in a bowl, in proportion as you do it. Then clarify one pound of sugar, which boil into a syrup to a-la-plume degree, and put in the peeled werjus which you boil also till you find it sufficiently done. Take care not to do it too much in syrup for fear it should turn black.

Note. Muscadine grapes may be done just in the same

manner.

# LXXXI. The compottes of pears called muscat, the first and most early.

Peel two pounds of those pears, scrape their tails, and cut off the end of them. In proportion as you prepare them, throw them into cold water. When done, take them out and drain them. Then put them in boiling water, and, when they are softened and almost done, take them out of that water to put them into cold again. When they have been there 2 while, take them out to drain, and put them afterwards in one pound of sugar boiling, wherein leave them till the syrup be almost compleated: then remove the pan from the fire, stir and skim them. Add the juice of half a lemon; then let cool and serve them.

You prepare in the same manner the sorts of pears called Rousselet, Martin-sec, Jargonelle, and Blanquettes. But as they are larger than the muscat, you may blanch them, that is to say, boil them in water, before peeling.

As for the rest, there is no sort of difference in the

process of making compottes of them.

LXXXII. The compotte of the largest sorts of pears, such as: Beurre, Messire-jean, Bergamotte, Vertelongue, Bzidery, Mouille-bouche, Amadotte, Doublefleur, Bon-chretien-d'hyver, Franc-real, &c. &c.

Boil in water any quantity of the above-mentioned pears, till they are done. Then peel them, core them, and throw them into cold water. Now melt a quantity of fugar proportionable to that of your pears, in which you put them and boil to a fyrup, as for the other forts of compottes. When done, take them from the fire, and skim them well. Squeeze over the juice of half a lemon, and serve them either warm or cold, as you like.

LXXXIII. A compotte of pears a-la-braise.

You may put a-la-braise all forts of pears, especially of the large fize above-mentioned. To do this you proceed as follows. Broil your pears over a chaffingdish of bright and live coals: and, when sufficiently done, place them a moment on the naked coals, that you may peel them the more easy and to colour them. Then peel and core them, and put them in a weak fyrup, in which boil them a little while but not too much.

LXXXIV. A compotte of quinces.

The quinces are prepared in the fame manner when a-la-braise. The white quinces are best boiled in water first, before being put into the syrup, which is made with the same quantity of sugar as for pears.

LXXXV. Compotte of apples, Portuguese fashion. Cut a few apples by the middle into two halves, and core them. Then put them on a filver place with fugar under and over them. Set this plate on the stove with fire underneath, (and cover it with fuch a lid as can admit, by means of a rim raised round it at the top.) of some lighted charcoals put on it. Let the apples do thus between thefe two fires till the fugar turns all brown and in caramel, without however being burnt. Such compottes are served hot.

LXXXVI. A

LXXXVI. A jelly-compotte of apples.

Cut into quarters, pare and core, a few golden pippins, and throw them into cold water. In the mean while chop five or fix more apples to pieces, and boil them with the parings of the others in two quarts of water. Then strain all through a stannel; and, in that liquor put one pound and a quarter of sugar, then set it on the fire with the quarters of pippins which you siest prepared. Boil them thus gently for sear they should mash. When done, take the pan from off the sire, and take the quarters out of the syrup, one by one, and range them in order on a dish. Then set your syrup again on the fire and boil it till it comes into a jelly, when cold you take it and lay it on your apples which you thus cover with it. This compotte may keep for sive or six days.

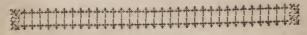
LXXXVII. A compotte of apples a-la-bouillonne.

Cut a few apples into two halves and core them. Range them in the pan, and for the quantity of fix or eight apples, put one pint of water and a quarter of a pound of fugar. Cover them over and fet them on the fire to boil; then when the liquor is almost all wasted, dress them on a dish and serve them.

The compottes of calvil apples are made in the fame

way.





#### C H A P. XIII.

SECRETS relative to the art of taking out SPOTS and STAINS.

I. To take off iron-molds from linen.

PUT boiling water into a bowl and spread the stained part, or parts, of your linen over it, so as to let it be well penetrated with the steam of the water. Then rub the places with forrel's juice and salt till they are perfectly and thoroughly soaked with it. Such linen washed afterwards in the lye of wood-ashes, will be found to return intirely free from the iron mold spots it had before.

II. To take off carriage-wheel's grease from clothes.
Rub the place with butter. Then with blotting paper and a hot iron, or a bit of red hot charcoals in a filver spoon, you may take all off as you would a drop of wax or tallow on a cloth.

Boil some chamberlye and wash the place with it.

Then rinse it with clear water.

IV. To take off all forts of spots from cloth of whatever colour it may be.

Take half a pound of crude honey, the yolk of a new laid egg, and the bulk of a nut of ammoniac falt. Mix all well together, and put fome on the fpots which happen to be on either filk or cloth. After having left it there a while, wash the place with clean water, and the spot will disappear.

V. A general receipt against all sorts of spots, upon every fort of stuff.

A water impregnated with alkaline falt, black foap and bullock's gall, takes off extremely well the greafy; fpots from any cloth or filk stuff.

V1. Against 2

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VI. Against oil-spots.

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Take a piece of white foap which you shave very fine and put in a quart bottle with a wide mouth and neck, half filled with lye. Add to this the bulk of a nut of ammoniac salt, two yolks of eggs, cabbage-juice and bullock's gall a discretionable quantity, and in short, one ounce of salt of tartar in subtile powder sisted. Stop the bottle well, shake it and expose it to a south sun for sour days. After that time, if you pour off that liquor on any oil spot and rub it well with it in and outside, then let it dry, and wash it again with clear water, or again with the following composition of soap, that spot will intirely disappear.

VII. A washing ball to take off spots.

Take fuller's earth, or foft foap which mix and incorporate with vine brush ashes, white chalk, alum and tartar pounded all together in a mortar and affeed through a very fine silk sieve. When all is made into a passe, form your balls with it and let them dry in the shade. To use them, rub any spotted place with it and wash it afterwards with clearwater.

VIII. To take out pitch and turpentine spots.

Rub well the spot with oil of olive, which set to dry for one day and one night. Then, with warm water and the above washing ball, you will intirely ungrease the place.

IX. Against ink-spots, whether on cloth or linen. Wet immediately the place with lemon's, or forrel's juice, or with white soap diluted in vinegar.

X. Another more simple remedy against ink when just spilled.

Prejudice always did, and always will, prove fatal from the minutest to the most interesting circumstance in life. The time which is spent in lamenting over an accident, just hppened before our own eyes, is but too often the only one which could have saved and prevented

prevented the dire consequences of it, nay perhaps repaired it intirely without leaving the least scar behind, had we ran instantly to the remedy. Ink never does nor can spoil the cloth, Auff, silk, lace or linen on which it is spilled, unless it lies there to driness. And it is well known, on the other hand, that if you put as much water in your ink-horn, as there is ink, you make it too pale : if twice, still more so: if three, four, five, fix, if twenty if fifty times; then it will be fuch indeed that it will be no more ink at all. What could a pint of ink do in a quart of milk? a great deal of mischief without doubt. But, in 50 or a 100 gallons nothing at all. By parity of reasoning it must be obvious that if on the finest filk, cloth or velvet, muslin or lace ruffles, &c. a whole phial of ink should be spilled, an undeterminate greater quantity of water than there was ink, poured instantly on the place, by degrees and not all at once, must weaken it to such a degree as to wash it off at last intirely. What reasoning thus once dictated naturally, reiterated experience fince proved: therefore, here it is recommended. Sense only and judgment must be consulted in the execution. As for example, if the ink be spilled on a russe or apron, &c. while you have it on, let one hold the affected part between his two hands over a bason and rub it while another is pouring gradually water from a decanter; and let a whole pitcherful be used if necessary. If the russle, apron, &c. be at liberty and not actually worn on, the place dipped into a bason filled with water, and there squeezed and dipped in again, may do ; provided you change the water in abundance, every two or three squeezes. If the ink be spilled on a green carpet table, it may immediately be taken out with a tea spoon so dexterously that any water at all shall hardly be wanted afterwards, provided it has not laid any time on it, and was only that instant spilled; as the down of the cloth prevents the immediate foaking of the ink or any liquor indeed (except oil) through and through. But if it have laid some time, let the time be ever so long, prowided it is still wet, by pouring a little fresh clean

water at a time on the place, and gathering it up each time with a fpoon, and pressing hard to squeeze it out of the cloth into the spoon again, you will at last bring it to its natural colour as if no such accident had ever happened. These sew circumstances explained, are sufficient to guide any one, who has a common share of good sense and understanding, how to act on this principle in others.

XI. Against oil spots on satin, and other filk-stuffs, even on paper.

If the spot is fresh and just done, heat on the shovel some ashes from calcined sheep's troters, and put some under and upon the place. Then, laying something heavy upon it, let it remain so for one night; the next morning the spot ought to be gone: but, if not quite, renew the precept.

XII. A preparation of balls against spots.

Take half a pound of foap, four ounces of clay, and one of quick lime. Dilute all with a little water, and make it into pills or small balls. With these rub the spots, and wash the place afterwards.

XIII. For filks.

If you rub the spots which are upon a filk with spirit of turpentine, they will disappear: because the volatility of that spirit exhaling into vapour, carries along with it the oil of the spot to which, on account of its homogeneous quality, it communicates its volatility, by penetrating and subdividing it infinitely.

XIV. To restore gold and silver laces to their former beauty.

Mix equal quantities of water, bullock's and jack's gall. With this composition rub your gold or silver and you will see it changing colour directly.

XV. To restore Turkey carpets to their first bloom.

Beat the carpet well first with a rod, till perfectly free from dust. Then, if there be any spot of ink, take them out with a lemon, or with forrel; and wash the

the place afterwards with clear water. Shake the rest of the water off, and let it dry where you rubbed it with any. When dry, rub the carpet very hard all over with the smoaking hot crum of a white loas: and, when you find in the evening, the skies clear and a likelyhood of being a sine night, let the carpet be put out for two or three such nights.

XVI. To make tapestries resume their first brightness, when their colours have been turnished and spoiled.

Shake and clean well the tapethry by rubbing it all over with white chalk which you leave on it for about one day. Next, with a rough hair brush, get all that chalk out again, and put on fresh, which leave as before. Then with the same rough hair brush get this out also, and beat it soundly with a rod, and brush it afterwards with the soft cloth-brush. This operation will restore a tapestry to its pristine state.

XVII. To take off all the spots of wax from welvet of any colour, except the crimin.

Take the crum of a stale loaf, and cut a thick slice out of it, which toast, and apply, while burning hot, on the spot of wax; when cooled, renew it till all the wax is soaked out of the velvet.

XVIII. To take the same off from filks and camblet. Put on each wax spot, some soft soap, and set in the sun till grown warm; then, by washing the place with clean water, the spot will disappear.

XIX. To wash a gold or silver, or silk embroidery, on either linen, or any stuff whatever, and render it like new.

Take bullock's gall, one pound; foap and honey, three ounces of each; and Florentine orrice, about the same quantity in subtile powder. Put all in a glass vessel, in which mix it well, into a paste, and let it be exposed for ten days in the sun. When you are ready to use it make an insusion of bran, which boil in water and strain through a cloth. Then smear the work over with the above-described paste, in such places as you want to clean, and wash them asterwards with the faid bran

bran water, renewing this till it receives no more alteration in its colour. Wipe then well the places with a white cloth; and wrap the work in a clean napkin to fet it in the fun to dry, after which pass it through the polishing and lustring press, and the work will be asfine and bright as when new ..

XX. To take the spots off from filk and woollen stuffs. Take French starch; without any mixture of indige.

or blue whatever, which dilute in a cup with good. brandy, like a thick pap. Of this paste, put on each fpot, and, when dry, rub it off and brush it. If the fpot is not quite gone at the first time, renew the oparation, and it certainly will at the second.

XXI. To colour welvet in red.

Take four ounces of adragant, and one of Arabick. gums, both of which pulverise. Put this powder in clean water, wherein let it dissolve for two or three days. After which time, steep a sponge in the liquor, and rub the wrong side of the velvet. If, after being dry, you find it not high-coloured enough, renew it and the effect will surprise you.

XXII. To revive the colour of a cloth.

Pour one quart of water on one pound of burnt potashes. Twelve hours after decant the water off in another vessel, and put in a handful of dry moth-mullein's leaves, with two bullocks galls. Boil all together till the leaves go to the bottom. Then fet this water for a few days in the fun. Then putting in it whatever colour you want, boil it along with the cloth in that lye, and let it thus foak afterwards for fourteen or fifteen days, then the cloth will have resumed its primary colour.

XXIII. To take the spots off from a white cloth.

Boil two ounces of alum for half an hour, in a pint or a pint and a-half of water; then put in a piece of white foap, with another pound of alum; and, having foaked thus three days in the cold, you may with it, wash all the spots of any white cloth whatever. XXIV. To

XXIV. To take off the spots from crimson and other velvets.

1. Take one pint of lye made of vine-branch ashes, in which dissolve half an ounce of alum's dregs. When fettled, strain it through a cloth; then take another drachm of alum, half a drachm of Spanish, and as much of soft soap; a scruple of common, and half a drachm of ammoniac salts; a calf's gall, and a little celandine's juice. All being well mixed, strain and keep it for use.

2. Before using, take the quantity you think to have need of in a cup, in which put a little Brasil wood and bourre d'ecarlatte (or goat's hair from the dyers, dyed with madder) to boil a bubble or two, then strain through a cloth In that state, your preparation will be sit to take off all the spots from crimson either cloth or velvet.

Note For cloths or velvets of other colours, tinge your liquor with bourre, or goat's hair, of the same colour.

XXV. To take off an oil fpot from cloth.

Take oil of tartar which put on the spot, then wash it immediately, first with lukewarm water, then with two or three cold waters, and it will be perfectly cleansed.

XXVI. A composition of soap to take off all forts of spots.

1. Take one pound of Venetian white soap, fix yolks of eggs, and half a spoonful of salt pounded. Incorporate all together with a sufficient quantity of the juice from the leaves of white beet. Make this composition into small cakes, which dry in the shade.

2. To use them, wet the place of the cloth where the spot is, with clear water, and rub it over on both sides with the said soap; then, washing it, the spot will

disappear.

XXVII. To take the spots off from a white filk or crimson welvet.

Wet the place well with brandy of three rectifications, or with the very best spirit of wine, then smear it over with the white of an egg, and set it to dry in the sun.

When

When dry, wash the place with clean water, passing and squeezing it between your singers; and, if the spot is not gone at the first operation, it will not fail at the second, therefore renew it again.

FINIS.



