Dictionarium Polygraphicum:

Or, The Whole

BODY of ARTS

Regularly Digested.

CONTAINING,

I. The ARTS of Designing, Drawing, Painting, Washing Prints, Limning, Japanning, Gilding in all their various Kinds. Also Perspective, the Laws of Shadows, Dialling, &c.

II. Carving, Cutting in Wood, Stone; Moulding and Casting Figures in Plaister, Wax, Metal; Engraving, Etching, and Mezzotinto.

III. An historical Account of the most considerable Painters, Sculptors, Statuaries, and Engravers; with those Cyphers or Marks by which their Works are distinguished.

IV. An Explanation of the Emblematical and Hieroglyphical Representations of the Heathen Deities, Powers, Human Passions, Virtues, Vices, &c. of great Use in History-Painting.

V. The Production, Nature, Refining, Compounding, Transmutation and Tinging all Sorts of Metals and Minerals of various Colours.

VI. The ARTS of Making, Working, Painting or Staining all Sorts of Glass and Marble; Enamelling, and the Methods imitating all Sorts of Precious Stones, Pearls, &c. according to the Practice both of the Ancients and Moderns.

VII. Dying all Sorts of Materials, Linen, Woollen, Silk, Leather, Wood, Ivory, Horns, Bones; also Bleaching and Whitening Linen, Hair, &c.

VIII. The ART of Tapestry-Weaving, as now performed in England, Flanders, and France, either of the high or low Warp; and many other curious Manufactures.

IX. A Description of Colours, Natural and Artificial; their Productions, Natures or Qualities, various Preparations, Compositions, and Uses.

X. The whole ART of Pyrotechny, or Fire-Works; and the Chinese Method of making Porcelain: Together with a great Variety of other curious Particulars not here enumerated.

Illustrated with Sixty-nine COPPER-PLATES.

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By J. BARROW.

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THE

POLYGRAPHIC DICTIONARY.

J.

JACINTH, } is a precious ſtone, ſo called from the re-
HYACINTH, } ſemblance it bears in colour to the purple flower called a hyacinth.

There are four ſorts of Jacinths: viz. Thoſe intermixed with a vermilion colour; thoſe of a ſaffron colour; thoſe of an amber colour; and, laſtly, thoſe of a white, intermixed with a pale red.

Jacinths, again, are diſtinguiſhed into oriental and occidental; the oriental Jacinths come from Calicut and Cambaya, and are equal in hardneſs to the oriental amethyſt; the occidental are found in Bohemia and Portugal, which are a degree ſofter.

The Jacinth graves or cuts fine, and would be more uſed for ſeals, &c. but that the graving oftentimes coſts more than the ſtone.

The ancients uſed it for amulets and taliſmans; and wore it about their neck, or ſet it in rings, &c. and ſuppoſed it to have the virtue of preſerving them from the plague, &c.

To make a fair JACINTH. It is ſcarce poſſible to make Jacinth without lead, in its compoſition; wherefore you muſt put in an ounce of powder of cryſtal, two ounces and an half of minium, with twenty-four grains of verdigreaſe, two drachms of ſublimate, and five or ſix leaves of ſilver; the whole reduced to fine powder in a braſs mortar, and ſearced through a fine ſieve; mix them well together, and put them in a crucible, covered with another, and well luted; then bake and purify it in a glaſs-houſe furnace for twelve hours. Then take it off the fire, and pound it again in a braſs mortar to a fine powder, ſifting it through a fine ſieve; then put it in a new crucible, which cover and lute well, and ſet it again in the glaſs-houſe furnace for twenty-four hours, and twelve more in the annealing furnace: The crucible being cold, take out the matter, which will be of a fine Jacinth colour, which cut and poliſh.

An oriental JACINTH *colour*. This colour will be of a very fine reddiſh-yellow, ſuch as is the true oriental Jacinth.

To make it, take one ounce of cryſtal in powder, three ounces of minium, one ounce of arſenic, prepared as for the topaz, and one ounce of vitriol calcined ad rubedinem, the whole reduced to a fine powder in a braſs mortar, proceeding moreover as in the preceding.

JADE, a greeniſh ſtone, bordering on the colour of olive, much eſteemed for its hardneſs, which exceeds that of porphyry, agate, and jaſper, and is only to be cut with the powder of diamonds.

It is mightily eſteemed by the Turks and Poles, who all adorn their fine works with it, and eſpecially the handles of their ſabres.

Mr. Bernier tells us, that the caravans of Thibet carry it to Cachemire, and that the Galibis prize it as highly as a diamond.

JANUARY, is repreſented, in painting, &c. all in white, like ſnow or hoar froſt, blowing his fingers; under his left arm a billet, and Aquarius ſtanding by his ſide.

JANUS, is repreſented, in painting, &c. with two faces; holding in one hand a long rod or wand; and in the other a key.

The two faces of Janus ſignify time; the one, being withered and hoary, ſhews time paſt; the other, youthful and bearded, time to come.

Pliny tells us, that Numa Pompilius, king of the Romans, cauſed the ſtatue of Janus to be hewed out in ſuch ſort, that the fingers of his hands appeared to be 365, to repreſent the number of the days in the year, and that he was god of it; whereupon, the firſt month in the year was called Januarius, from their god Janus.

Under the feet of Janus are oftentimes placed twelve altars, referring to the twelve months of the year, or ſigns of the zodiac, through which Sol makes his revolution.

The Phœnicians, as is reported by Cicero and Macrobius, repreſented Janus by the form of a ſerpent, holding its tail in its mouth, and continually turning round.

Some repreſented Janus with four faces, as were thoſe ſtatues which were found in divers places in Tuſcany.

By the four faces are ſignified the four ſeaſons of the year; ſpring, ſummer, autumn, and winter: Which ſome think to be thoſe of Venus, Ceres, Bacchus, and Vulcan; and ſometimes the winds with Æolus, their commander.

JAPANNING. *The method of preparing woods for* JAPANNING. 1. Take plaiſterer's ſize, diſſolve it over the fire, making it pretty warm; and mix with it whiting finely powdered, until it is of a good body, but not too thick.

2. Take a bruſh of hog's hair, and with it lay your work over

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over with the former mixture; letting it dry very well: And repeat this ſo often until you have hid all the hollowneſſes, crevices, pores, and grain of the wood, letting it be thoroughly dried between every laying.

3. When it has at laſt grown thoroughly dry, rub all the work over with a wet rag, until you have rendered it as ſmooth as is poſſible. N. B. This is called water-planing.

4. When it is grown thoroughly dry again, ruſh it even and ſmooth, and as cloſe to the grain as poſſibly may be.

5. After this, waſh over the work twice with the thickeſt of ſeed-lac varniſh, letting it ſtand to dry each time; and, if it is not ſmooth, ruſh it again, to make it ſo. See SEED-LAC VARNISH.

6. In a day or two's time, you may varniſh it over with black, or what other colour you deſign, as is directed; and, when it is dry, finiſh it by poliſhing it.

7. After the ſame manner carved figures are to be primed; alſo frames, cabinets, ſtands, tea-tables, &c. only that theſe are not to be poliſhed, and therefore do not require ſo great a body of varniſh.

8. But for the tops of tables, boxes, ſides of cabinets, &c. when the wood is ordinary and rough-grained; as deal, oak, &c. you may uſe common or joiner's glue, diſſolved in water, until it is fine and thin; into which put the fineſt ſaw-duſt, until it is indifferently thick.

9. Then, with a bruſh fit for that purpoſe, lay your wooden work over with it; and, when it is dry, repeat it ſo often until all the roughneſs and grain of the wood is ſufficiently hidden.

10. After two or three days let it be ſcraped with a cabinet-maker's ſcraper, as pear-tree and olive wood are done, to make it as ſmooth and even as poſſibly may be; then varniſh it as before directed.

This, if well done, might not come behind any other work, either for beauty or durableneſs.

11. But however thoſe woods that are firm and cloſe-grained, are chiefly and only to be choſen; of all which, pear-tree is in the higheſt eſteem.

Of taking off JAPAN *patterns.* 1. Having laid on your ground, whether black or any other colour, and rendered it fit for drawing; and having your draught or deſign before you in paper, either drawn or printed; do as follows:

2. Rub this draught or print all over the back ſide with whiting or fine chalk, wiping off all that whiting or chalk which lies looſe and like duſt upon the paper.

3. Then lay this paper, whether it be a drawing or a print, upon the table, or piece of varniſhed work, with the whited

ſide next to it; and upon the very place where you would have that figure made, and with a needle, not ſharp-pointed, fixed into a ſmall wooden handle, called a tracing pencil, go over and trace as much of the drawing or print, as you think fit.

4. Take the moſt material and outward ſtrokes, and all that you think will be hard and difficult to draw without a pattern.

5. Thus, by means of the whiting or chalk, you will have the groſs form of the draught or print, and ſuch other lines, as will be a direction to you how to perform what you would have done.

6. Having done this, if you draw in gold ſize, uſe fine cinnabar mixed with gum water; and, with a ſmall pencil dipped into it, go over all the lines made by the chalk or whiting; this will hold it on ſo as not to come off; but you may work upon it with your gold ſize at pleaſure.

7. If you work upon metals or colours in gum water, then trace or draw over your deſign with gum water, mixed with gold or braſs duſt; by either of theſe ways, when it is dry and finiſhed, viz. either in gum water or gold ſize, you may compleat and finiſh your work. Plates I. and II. annexed, are deſigned in the Chineſe taſte, as ſpecimens for prints of this kind.

The method of JAPANNING *wood with black.* 1. The wood being cloſe-grained, well-wrought, and ſmooth, ruſh it as much ſmoother as you can, and keep it in ſome warm place, or not far from a fire; but you muſt be ſure, while you are varniſhing, not to let your work be ſo near the fire as to burn, ſcorch, or bliſter it; for which flaws, if they happen, there is no other remedy but ſcraping off and varniſhing the piece anew: Therefore it is beſt to work in a ſtove, if it can be, becauſe it gives an even and moderate heat to all parts of the room.

2. Then take the following varniſh:

Take of the thickeſt ſeed-lac varniſh, ſix ounces; lamp-black, enough to colour it, mixed in a gallipot; and, with it, firſt waſh over or varniſh your piece three times, letting it dry thoroughly between each time: Again, with the ſame varniſh waſh it over three other ſeveral times, letting it thoroughly dry between each time; and ruſh it ſmooth between each of them.

3. Take the following varniſh: Of the thickeſt ſeed-lad varniſh, ſix ounces; Venice turpentine, one ounce; and waſh over your work with it ſix times, letting it ſtand twelve hours between the three firſt and the three laſt varniſhes.

4. Your work being thus far done, take the following Japan varniſh:

Take of the fineſt ſeed-lac varniſh, ſix ounces; of lamp-black, a ſufficient quantity; mix them, and with that let your work be var-

varniſhed twelve times, ſtanding twelve hours between the firſt ſix and the laſt ſix waſhings.

Then let it ſtand to dry for ſix or ſeven days; after which, poliſh it with tripoli, and a rag as directed.

5. But in poliſhing you muſt work at it till it is almoſt ſmooth, and then let it ſtand by for two days; then poliſh it again almoſt enough, and again let it be ſix days, and then finiſh the poliſhing of it; and then clear it up with oil and lamp-black, and ſo will you have a good black Japan, ſcarce at all inferior to the true Japan.

It is to be noted, that, in this and all other Japan works, you muſt never ſtrike your pencil twice over the ſame place, becauſe it will make your colours or varniſh lie rough and ugly; but every ſtroke waſh a new place, carrying a ſteady, quick, and even hand, beginning at the middle of the table, and ſo drawing your bruſh to either end, till the whole piece has been paſſed over.

White JAPAN. 1. In doing this, great care muſt be taken that nothing may come near that will foul or ſoil it.

In the firſt place, lay the ground with iſing-glaſs ſize, mixed with as much whiting ſcraped into it as will make it of a reaſonable thickneſs, or ſo long, till that by a ſtroke, your pencil, being dipped into it, will whiten the plait of your work; but let it be neither too thick nor too thin; let the whiting be well mixed with your ſize, by means of your hogs hair bruſh.

2. Whiten your work once over with it, and when it is thoroughly dry do it over again; and when dry repeat it the third time, after which let it ſtand to dry for twelve or twenty-four hours, covering it from duſt.

3. Then, with ſome Dutch ruſhes, let it be ruſhed as near the grain of the wood as you ſee fitting.

4. Take freſh iſing-glaſs ſize, what quantity you pleaſe; and flake-white, ſo much as will make the ſize be of a fair body; mix them well together, and with this go over your work three ſeveral times, letting it be thoroughly dry between each time, and afterwards ruſh it very ſmooth.

5. Then take white ſtarch boiled in fair water till it is ſomewhat thick, and with it, almoſt blood-warm, waſh over the whole work twice, letting it dry between each time, and ſo let it ſtand for a day or two.

6. It being firſt waſhed with rectified ſpirit of wine, to clear it from the duſt, dip a pure clean pencil into the fineſt white varniſh, and do over the work ſix or ſeven times; and two days after varniſh it over again the ſame number of times; if this be well done, it will give a finer gloſs than if it were poliſhed; but, if it be not cleanlily and nicely done, poliſhing will then be ne-

ceſſary, for which reaſon you muſt give it five or ſix varniſhings more.

7. If this laſt is well done, it will not ſtand in need of poliſhing, and then two waſhes more will do: But, if it requires poliſhing, you muſt then give it three, and allow it a week's time to dry in, before you begin to poliſh.

8. In poliſhing you muſt make uſe of the fineſt tripoli and rags, not too wet nor too dry, with a light and gentle hand; and, in clearing, inſtead of lamp-black and oil, you muſt uſe putty and oil, and conclude with white ſtarch mixed with oil, to finiſh it.

9. But there are ſome perſons who wholly reject this work with ſize, liking that only which is performed with varniſh; and, therefore, ſuch may, if they pleaſe, uſe the white Japan varniſhes exactly according to the method laid down for the black; and this will not be ſo ready to crack or peel off.

Common red JAPAN. 1. Take iſing-glaſs ſize, or rather the thickeſt ſeed-lac varniſh, as ſome adviſe, becauſe it will not then break off in poliſhing, as that mixed with ſize commonly does; beſides it better helps to bear the body of varniſh, which muſt afterwards be laid over it; as much as you pleaſe, fine pure vermilion a ſufficient quantity, as diſcretion ſhall direct.

2. Warm your work by the fire, and, with a bruſh, varniſh it with the former mixture, doing it over four times, and letting it dry between every time; after which, ruſh it ſmooth.

3. This being done, waſh it over eight times with ordinary ſeed-lac varniſh, and ſet it by for twelve hours; then ruſh it again but ſlightly, to make it look ſmooth.

4. And, laſtly, for an exquiſite outward covering, waſh it ten times with the beſt ſeed-lac varniſh; let it lie ſeven days to dry, and then poliſh it with tripoli, and clear it up with oil and lamp-black.

Deeper or dark red JAPAN. Firſt lay on your common red, as before directed; then take thick ſeed-lac varniſh, what quantity you pleaſe; and fine ſanguis draconis in fine powder, a ſufficient quantity; mix it by little and little with the varniſh, and a very ſmall matter of it will extremely heighten your colour, and every waſh will render it deeper.

When the colour is almoſt as you deſign, forbear the uſing any more of the ſanguis draconis, becauſe the after-layings of the ſeed-lac varniſh will heighten it.

Then conſider how many varniſhes are ſtill to be laid on, and accordingly uſe your ſanguis draconis, finiſhing the work, as is directed in the former common red Japan.

A pale red JAPAN. Uſe the following pale red Japan varniſh: Take vermilion, what quantity you pleaſe; mix it with ſo much

much white lead as to make it of the degree of paleneſs you would have it, or rather paler, becauſe the varniſh will heighten it; mix this with ſeed-lac varniſh, and waſh your work over with it ſeveral times, letting it dry between every time; and proceed as you did before as to the common red varniſh.

Where take notice, that, in making this mixture, you muſt conſider how many times you are to varniſh after your red is laid on; for, if there be many, then know that they will increaſe and heighten the colour, for which reaſon you muſt make your colour of a degree of paleneſs accordingly.

Blue JAPAN. 1. Take gum water what quantity you pleaſe, and of white lead a ſufficient quantity; grind them well upon a marble; take iſing-glaſs ſize what quantity you pleaſe, and of the fineſt and beſt ſmalt a ſufficient quantity; mix them well together; then add to them of the white lead ground, as before, ſo much as will give it a ſufficient body; mix all together to the conſiſtence of a paint.

2. Do your work over with this mixture three or four times, till you perceive the blue to lie with a good and fair body, letting it dry thoroughly between each time; if your blue is too pale, put more ſmalt among your ſize, without any white lead.

3. Then ruſh it over ſmooth, and go over it again with a ſtronger blue; and, when it is thoroughly dry, waſh it three times over with the cleareſt iſing-glaſs ſize alone; and let it ſtand for two days to dry, covering it.

4. Then warm your work gently at the fire, and with a pencil varniſh your work over with the fineſt white varniſh, repeating it ſeven or eight times, letting it ſtand to dry two days, as before; after which, repeat again, the third time, the waſhes ſeven or eight times in like manner.

5. Let it now ſtand to dry for a week, and then poliſh it as before directed; and clear it up with lamp-black and oil, to give it a polite and gloſſy appearance.

6. As to the colour, you muſt be guided by your reaſon and fancy, whether you will have it light or deep; for a ſmall proportion of the lead makes it deep; a greater, light.

Alſo the ſize for laying whites, blues, or any other colour ought not to be too ſtrong, rather weaker, and juſt ſufficient to bind the colours, and make them ſtick on the work; for, if it be too ſtiff, it will be apt to crack and fly off.

And the reaſon of waſhing twice with clear ſize is to keep the varniſh from ſinking into, or tarniſhing the colours; and in this caſe it ought to be of a ſtrong and full body.

Lapis lazuli JAPAN. 1. Take iſing-glaſs ſize, or thick ſeed-lac varniſh, and mix it with ſpodium, or white lead; and with this

varniſh your work three or four times over, laying it for a ground-work, letting it dry between each time.

2. Let it ſtand two or three days to be thoroughly dry, and then ruſh it till it is very ſmooth, ſetting it by two or three days more after the ruſhing.

3. Then take thick ſeed-lac varniſh at pleaſure, mix it with fine pure blue ſmalt, with which varniſh over your work five or ſix times, letting it dry between each time; then let it ſtand by for two days, and ruſh it again.

4. When it has been ruſhed ſmooth, varniſh it twice over, once with the beſt white varniſh, and ſet it by to dry for two days more; then mix pure ultramarine, or fine blue ſmalt, with the beſt white varniſh, with which varniſh it ſix or ſeven times, till it comes to a full body and a perfect likeneſs, letting it ſtand to dry between each varniſhing.

5. At the laſt time of varniſhing with the blue varniſh, run all your work over ſtragglingly in wild irregular ſtreaks, in reſemblance of nature, with liquid or ſhell gold, filling the blue as you ſee occaſion, and adding very ſmall ſpecks up and down, and ſuch other various colours as are uſual to be ſeen upon the ſtone.

6. When this has been done, and the work is grown thoroughly dry, varniſh it three or four times over with the beſt white varniſh, letting it ſtand to dry between each time; afterwards let it ſtand two or three days, and then poliſh it with tripoli, and clear it with lamp-black and oil.

7. You are to take notice of this, that by theſe methods you may make and uſe any colour you fancy, or which reaſon and experience ſhall direct you to; but, withal, that all colours that are light, and apt to tarniſh and loſe their beauty or gloſs, with ſeed-lac varniſh, muſt be covered and finiſhed with the beſt white varniſh, that of ſeed-lac being prejudicial.

Cheſnut-coloured JAPAN. 1. Take Indian red, or brown-red oker, which you pleaſe; grind them with iſing-glaſs, or parchment ſize, upon a porphyry ſtone, till they are as ſoft and as fine as butter; then mix a little white lead, which grind ſtrongly; and, laſtly, lamp-black in a due proportion, ſtirring and mixing them well together.

2. If the mixture is too bright, darken it with lamp-black; if too dark, heighten it with white lead, varying the proportion till you have brought it to the colour you would have it; for, what the colour is while it is wet, it will be exactly the ſame when it is varniſhed; though, drying without varniſh, it would look otherwiſe.

3. Take thick ſeed-lac varniſh ſix ounces, of the former prepared colour what quantity you pleaſe; mix them in a gallipot over a gentle fire for uſe.

Olive-

Olive-coloured JAPAN. Take iſing-glaſs or parchment ſize what quantity you pleaſe, Engliſh pink in fine powder a ſufficient quantity; grind them together till they are of the conſiſtence of butter; then mix them with lamp-black and white lead in a due proportion, which you may find by making ſeveral trials; adding white lead if it be too dark, and lamp-black if it be too light.

If it be too green, help it with a little raw umber ground very fine, for this will take away the greenneſs.

Marble JAPAN. Your wood being prepared in all reſpects as for white Japan, then lay it over with flake-white or white lead; and, if you deſign your work to be a white with ſome veins, uſe vine-black, made of the cuttings of vines, burnt and ground; mix it with a very weak iſing-glaſs ſize made warm, the ſaid vine-black and white lead making two or three degrees of it, till you have produced the intended colours for the clouds and veins of marble.

2. Then with a large clean bruſh wet the work over with water, and, before it is dry, dip a camels hair pencil in the paleſt thin mixture, and ſo lay the fainteſt large clouds and veins, which, being laid on while the work is wet, will lie ſoft and ſweet, like that which is natural.

4. And, before it is too dry, gently touch all the leſſer veins, and variety of the marble, with a ſmaller pencil, and one degree darker; endeavouring, as much as may be, to imitate nature in all its footſteps.

4. Then, with a ſmall-pointed feather, touch and break all your ſmaller veins with the deepeſt colour, and make them irregular, wild, and confuſed, as they appear in the real ſtone; then ſet it by to dry for a day or two, and waſh it over with iſing-glaſs ſize or parchment ſize.

5. After it has ſtood for two or three days to dry, varniſh it over five or ſix times with the beſt white varniſh, letting it ſtand to be thoroughly dry between each time; then ſet it by again for a week, and afterwards poliſh it and clear it up, according as you are directed in varniſhing other works.

6. If you would have it repreſent either white or grey marble, you muſt uſe the beſt white varniſh; but, if yellowiſh, or of a parchment colour, you muſt uſe the beſt ſeed-lac varniſh, either alone or mixed with the white varniſh, as you pleaſe.

Tortoiſe-ſhell JAPAN. 1. That which is here endeavoured to be imitated, is tortoiſe-ſhell, laid upon ſilver foil, which gives it life and beauty; now, to imitate this well, the wood muſt be cloſe grained, ſmooth, and well wrought, as box, pear-tree, walnut-tree, &c.

2. But, if the wood be coarſe-grained, as deal, oak, &c. it muſt be

be firſt primed with ſize and whiting, letting it dry between each time, and at laſt ruſh it ſmooth.

3. Then ſtrike over the breadth of a leaf of ſilver with a fit varniſhing pencil, and the thickeſt ſeed-lac varniſh; then take up the ſilver leaf with a cotton, and lay it on your work while it is moiſt, dabbing it down cloſe to the work, as is directed in gilding.

4. Then, in the like manner, varniſh another place, and lay on another leaf as before, doing this till the whole work is covered over with leaf ſilver; then let it ſtand to be thoroughly dry, and ſweep off all the looſe ſilver with a fine hair bruſh.

5. After this, take lamp-black, or rather Cologn earth, which comes neareſt to the colour of the ſhell, as much as you pleaſe; and grind it with parchment ſize, or gum water, till it becomes very fine and impalpable; and, when it has been ground very fine, mix it with more parchment ſize and gum water, agreeing with what you firſt ground withal.

6. Spot the darkeſt part of your ſhell-work with this mixture, after a careleſs cloudy manner, imitating nature as much as can be, letting a piece of true tortoiſe-ſhell lie by you for your imitation.

7. Grind fine ſanguis draconis in gum water very ſoft; but ſome grind it dry till it is very fine, and then mix it with fine ſeed-lac varniſh, which is moſt proper and agreeable for this work, and not ſo apt to be poliſhed off as ſize or gum water.

8. Now whereas there are ſeveral reds, lighter and darker, to be found on the edges of the blacker part, which ſometimes lie in ſtreaks and clouds on the tranſparent part of the ſhell; theſe are to be imitated with one of the two former mixtures of dragons blood.

9. With a ſmall pencil, dipped in one of thoſe mixtures, daſh the ſaid red ſtreaks, &c. fluſhing them in and about the dark places, both thicker and thinner, fainter and lighter, and with leſs colour towards the lighter part; and afterwards ſweeten it by degrees, that it may ſo loſe its ſtrength and redneſs, as to be quite loſt in the ſilver, or more tranſparent parts of the work.

10. When you have done this, give it ſix or ſeven waſhes of fine ſeed-lac varniſh; and, letting it ſtand to dry for a day or two, ruſh it gently and very ſmooth, to render it fit for the next operation.

11. Take fine ſanguis draconis and gamboge of each a ſufficient quantity, reduce them to a fine powder; mix theſe with as much fine ſeed-lac varniſh as will varniſh the piece ſix or ſeven times over, and ſet it by to dry for ſix or ſeven hours or more.

12. Then give it another, or third varniſhing, with the laſt mixture,

mixture, going over it ſo often till the ſilver ſeems to be changed to a gold-like colour.

13. And, laſtly, take care that your varniſh be not too thick and high-coloured with the ſanguis and gamboge; but rather heighten it by degrees, leſt the ſilver be too high-coloured before it has had a ſufficient body of varniſh: Let it ſtand to dry ſix or ſeven days; then poliſh and clear it up as before directed.

JAPANNING *with gold ſize.* 1. When your work is wrought, and you would decypher on it, draw the gold ſize all over that part, and that part only, which you intend to gild or adorn with gold, omitting thoſe places where you intend to lay your metals and other colours, as ſilver, copper, braſs, &c.

2. The ſize being thus wrought for the gold, let it remain till it is ſo dry, that, when you put your finger upon it, it muſt be glutinous and clammy, and ſtick a little; but not ſo moiſt that the leaſt particle of it ſhould come off with your fingers, but that it may be much like to thick glue when it is half dry.

3. When it is in this temper, it is the very nick of time when the gold is to be applied; then take a piece of ſoft waſh-leather, or the like, and wrap about your fore finger; dip it in your gold duſt, and rub it where your gold ſize is laid, for it will ſtick on the ſize and no where elſe.

4. If any gold duſt lie ſcattered about your work, bruſh it all away into your paper, in which your gold is, with a fine varniſhing bruſh which has not been uſed.

5. Then with your pencil draw that part with gold ſize alſo which is deſigned for your copper, and let it dry, as has been directed for the former; and then cover it with copper duſt, after the ſame manner as you did with the gold duſt.

6. Having done this, lay on your ſilver ſize; and when it is dry, as before, lay on your ſilver duſt, as you did the two former.

7. But this is always to be obſerved, that the metalline colours are to be laid ſucceſſively one after another, letting each be covered and thoroughly dry before you enter upon a diſtinct colour.

8. After all theſe, the other colours, which are not metalline, are to be laid on with gum water, reſerving the rocks, &c. for the laſt part of the work.

9. If you have mixed more gold ſize than you have occaſion for at one time, or if you are hindered from finiſhing it in one day, you will obſerve that your ſize, in five or ſix hours time, will have a ſkin upon it; in order to this, put the pencils into a gallipot of water, and pour fair water over your pot of gold ſize; and, if your ſize ſhould grow too thick, you may thin it with Venice turpentine; but you are to take notice, that doing this oftener than once will ſpoil the ſize.

10. Let your ſize be of a due conſiſtence, neither too thick nor too thin, that it may run ſmooth and clear, and that your ſtrokes may be fine and even, ſo that you may be able to draw the moſt fine hair ſtrokes.

11. If you would imitate Japan work exactly, avoid filling and thronging your black with draughts. In the true Indian work the ground is never crouded up with many figures, houſes, or trees, but a great ſpace is allowed to a little work; for the black adds luſtre to the gold, and the gold adds an excellency to the black.

13. In theſe works you may uſe ſome variety of metals, but in a very ſlender proportion to that of gold, which is the general ornament and characteriſtic of the genuine or true Japan work.

13. Be very exact in tracing or drawing out your deſign in vermilion or gold, to do it with an even hand; then, your gold ſize being ready prepared, make with a ſmall pencil the outward lines, the boundaries of the rocks, and thoſe things that ſeem to lie beyond the buildings.

14. Begin thoſe parts of the work that are moſt diſtant from you, becauſe then you will not be liable to rub or deface any thing while it is wet.

15. When you have done the fartheſt parts, work juſt according to your pattern, if you have any, and draw the gold ſize on the places anſwering to the black lines of your print or pattern, and no where elſe, leaving the white for the black Japan, or ground of the work.

16. And, in all reſpects, uſe your ſize as if you were to copy the print or pattern on white paper with ink or black lead; only you muſt take care that, while you are working on one part, you do not ſuffer that which is already done with ſize to grow ſo dry that it will not hold the metals; and for that reaſon you muſt often try what caſe thoſe parts of your work that are already ſized are in.

17. And therefore you muſt ſometimes be drawing, ſometimes gilding; and then go to drawing again, and then to gilding, continuing this alternately till your whole work is quite finiſhed.

18. If you find it troubleſome to draw the white and overpaſs the black, or, on the contrary, to draw the black and omit the white, on the tops of houſes, foldage of figures, faces, or the like; then for your eaſe overlay all thoſe parts of buildings, foldages, faces, &c. with gold ſize, and lay the metals on them; and, when they are well dried, waſh over thoſe places only which you deſign to ſet off with black, with your ſecuring varniſh.

19. Though, in ſome Japan work, ſilver is ſometimes made uſe

uſe of, yet it is but very ſeldom, except in ſome raiſed works, becauſe the beſt and brighteſt ſilver is too ſplendid a metal for black Japan; and therefore we chuſe, inſtead of that, a kind of dull or dirty ſilver, which is tin powder.

20. And, laſtly, you may ſet off your plain metals, when rubbed on gold ſize, either with metals mixed with gum water or gold ſize, viz. when the plain metals are laid, and thoroughly dry, hatch or work in the ſize for ſetting off, as you would do with metals mixed with gum water; and it is not to be doubted you would find the gold to be the beſt.

JAPANNING *with gold and colours.* 1. Draw or trace out your deſign, and fill moſt part of your ſmall works with gold, paſſing by, nevertheleſs, ſome few of them, which are to be reſerved for bright copper, green, gold, &c. to be ſo added to the pieces that they may grace and enliven the work.

It is uſual with japanners to fill frequently with dead metals, and to bind them in with gold.

2. Suppoſe you have great flowers, you may fill the ſeeded part thereof with ſilver, the leaves with vermilion; and, in ſetting off, work it with black diamond-wiſe; and the little ſpots of black, which lie in the white, work with bright red copper; then the part which is filled with red bind in with ſilver, and vein it with the ſame.

3. The ſeed of another large flower may be filled with bright copper, the leaves with ſilver; and, in ſetting off, border the ſeed with black, the inſide with ſilver; and compaſs in the leaves with gold, hatching them with black.

4. If any large flower is partly hid with a large leaf or leaves of the plant, let the ſeed of this be green gold; ſome parts bright gold; and, if any ſpots are in thoſe parts, let them be done with pure cinnabar; the flower with orange tawney, and ſet off with ſilver; and the leaves of the plant with yellowiſh green.

5. If there be a third flower, that may be done with green gold, the ſeed of it with bright gold, ſquared with black; other flowers may be laid with ſilver, the ſeeds with bright copper, and hatched and ſquared with black; other flowers with cinnabar, the ſeeds with tranſparent green, incloſed with vermilion, and the leaves hatched in with ſilver.

6. Another large flower may have its ſeed red, chequered with ſilver, the leaves covered with blue, hatched and ſurrounded with gold; leſſer flowers red, ſeeded with blue, and ſet off with ſilver.

7. Another large flower may be laid with tranſparent blue, bounded and wrought with gold; the leaves covered with ſilver, hatched with fine cinnabar. If there be another flower like the former, lay it with blue, ſeed it with dirty copper, ſet off and

incloſed with ſilver, its leaves with bright red copper, hatched with black.

8. Lay the ſeed of other flowers in tranſparent red, ſet them off with ſilver, border with black; make the leaves ſilver, and hatch with black; or make the ſeed bright copper, compaſſed and ſet off with black; the leaves red copper, which may be hatched and incloſed with white.

9. Though, in what has been ſaid, filling and ſetting off has been ſpoken of together, for the more eaſy apprehending of the matter; yet the plain colours muſt always be laid before you think of ſetting them off; becauſe you are more ready to ſet off with one colour before you undertake another, and your fancy is more ready to adorn and burniſh, or fill every ſingle flower and leaf.

10. But, when you have filled the flowers, you are next to conſider what is to be the covering of the large leaves; let them be adorned with metalline colours, generally ſuch as green ſullied gold, pale dull copper; but here and there intermixing tranſparent blue and green: Bound and vein them with ſuch colours as give the greateſt life, ſuch as may be chearful and delightful.

11. Sometimes you may double the borders of the leaves with the ground black of your piece left between, and make the veins, finiſhing lines, and the ſtrokes you ſet off with, fine, clean, even, and ſmooth.

The way of JAPANNING *wood or paper.* The people of Japan have a method of making plates, bowls, and other veſſels of brown paper, and ſometimes of fine ſaw-duſt.

Theſe veſſels are very light and ſtrong, after they have been varniſhed.

The method of making them is as follows:

Boil a good quantity of ſlips or pieces of brown paper in common water; maſhing them with a ſtick, while it is boiling, till it is almoſt become a paſte; then take it out of the water, and pound it well in a mortar, till it is come to a pumice, like rags pounded in the trough of a paper-mill.

Then take gum arabic, and make a very ſtrong gum water with common water, a quantity ſufficient to cover the paper paſte an inch thick: Put theſe together into a large glazed pipkin and let them boil, ſtirring them very well together, until you think the paper paſte is impregnated with the gum; then, having a mould ready to give the paſte the form or ſhape you deſign it, put it into it.

The mould is made as follows:

As for example, ſuppoſe you deſign to make a thing in the form of a pewter or earthen plate, you muſt procure a hard piece

piece of wood to be turned by a turner, on one ſide of ſuch a form, i. e. like the back of a plate, and a hole or two made in the middle quite through the wood.

And, beſides this, another hard piece of wood muſt be turned much of the ſame figure, about the eighth part of an inch leſs than the former; and, if you pleaſe, you may have ſome little ornament carved or engraven on the wood. Oil theſe moulds very well on the ſides that are turned, continuing to oil them, until they are well ſoaked with oil; then they will be fit for uſe.

When you are about to make a plate of the paper paſte, take that mould that has the hole in it, and, having oiled it again, ſet it even upon a ſtrong table, and ſpread over it ſome of your paſte, as equally as poſſible, ſo as to be every-where a quarter of an inch thick; then oil the other upper mould very well, and ſet it as exactly as may be on your paſte, and preſs it hard down; then ſet a great weight upon it, and let it ſtand for 24 hours.

N. B. The hole at the bottom is for the water to paſs through, that is preſſed or ſqueeſed out of the paſte; and the oiling of the moulds is to prevent the gummed paſte from ſticking to the wood.

When the paſte is dry, it will be as hard as a board, and be fit to lay a ground upon, made with ſtrong ſize and lamp-black; then let it ſtand to dry leiſurely, and, when it is thoroughly dry, then mix ivory-black finely ground with the following varniſh.

To make the ſtrong JAPAN *varniſh.* Take an ounce of colophony, and having melted it in a glazed pipkin, and having ready three ounces of amber, reduced to a fine powder, ſprinkle by little and little into it, adding now and then ſome ſpirit of turpentine; when this is melted, ſprinkle in three ounces of ſarcocolla finely powdered, ſtirring it all the while, and putting in frequently more ſpirit of turpentine, until all is melted; then pour it through a coarſe hair-bag, placed between two hot boards, and preſs it gently until the clear is received into a warm glazed veſſel. Mix ground ivory-black with this varniſh, and, having firſt warmed your paper plate, paint it in a warm room before the fire, as equally as you can, and ſet it into a gentle oven, and the next day put it into a hotter oven, and on the third day into one very hot, and let it ſtand in it until the oven is quite cold, and then it will be fit for any uſe, either for containing liquors cold or hot, and will never change; nor can this ſort of veſſels be broke without great difficulty.

It is highly probable, that, if the moulds were caſt of any hard metal, they might do better than if turned in wood.

The method of making them of the colour of gold. Having prepared plates, bowls, or any other veſſels, according to the method before directed, or according to this that follows:

Take

Take fine ſaw-duſt, and, having dried it well, pour on it ſome turpentine, mixed with an equal quantity of roſin, and half as much bees wax: Mix them well, and put them to your dry ſaw-duſt, ſtirring all together, until the mixture becomes as thick as a paſte; then take it off the fire, and, having warmed the moulds, ſpread ſome of your mixture on that which has a hole in the middle, as equally as poſſibly can be, and preſs down the upper mould upon it; then ſet it by, let it ſtand until it is cold, and the veſſel will be fit for painting.

You may, when the turpentine is melted, put in ſome ſarcocolla finely powdered, to the quantity of half the turpentine, ſtirring it well, and this will harden it. This compoſition ought to be made in the open air; becauſe, being apt to take fire, it will endanger the houſe.

But which ever of the mixtures you make uſe of, if you would have them look like gold, do them over with ſize; and when that begins to ſtick a little to the finger lay on leaf gold, either pure or the German ſort, as is directed for GILDING, &c. which ſee.

But the German gold indeed is apt to turn green, as moſt of the preparations of braſs will do; ſuch as thoſe of Bath metal, and others of the like ſort, which look like gold when they are freſh poliſhed, or cleaned every day.

But as they, being expoſed to the air, will change or alter to an ugly colour, gold is rather to be choſen; and is durable, never changing, and of a much finer colour than any of the former for a continuance.

And although the leaf gold is tender, and may be ſubject to rub off; yet the varniſh, with which it is covered, will keep it bright and intire.

After the gold has been laid on, and the gold ſize is dry, and the looſe flying pieces bruſhed off, then lay on the following varniſh to brighten the gold, and preſerve it from rubbing.

Varniſh for gold and ſuch leaf of metals as imitates gold. Melt ſome colophony, and then put in two ounces of amber well pulveriſed, with ſome turpentine, as the amber thickens, ſtirring it well; then add on ounce of gum elemi well powdered, and ſome more ſpirit of turpentine; ſtill keeping the liquor ſtirring, until it is all well mixed: But take care to uſe as little ſpirit of turpentine as you can; becauſe, the thicker the varniſh is, the harder will it be.

Let this operation be performed over a ſand-heat in an open glaſs, and ſtrain it as directed for the former varniſh.

Uſe this varniſh alone, firſt warming your veſſels, made of the paper paſte, and lay it on with a painting bruſh before the fire; and afterwards harden it by degrees at three ſeveral times

in

in ovens; the firſt being a ſlow heat, the next a warmer oven, and the third a very hot one: And theſe veſſels will look like poliſhed gold.

You muſt obſerve that thoſe veſſels that are made with ſaw-duſt and the gums, you may for them uſe a varniſh, made of the ſame ingredients as above, excepting only the gum elemi; and this will dry in the ſun, or in a very gentle warmth.

To make theſe paper, &c. veſſels of a red colour with gilded figures on them. The veſſels being prepared as before directed, with brown paper paſte, and after they are dried, &c. as directed for the firſt, mix ſome vermilion with the varniſh firſt directed, and uſe it warm; then ſtove it, or harden it by degrees in an oven, and it will be extremely bright; or elſe lay on the firſt ground with ſize and vermilion, and with gum arabic water ſtick on in proper places ſome figures, cut out of prints, as little ſprigs of flowers, or ſuch-like; and when they are dry do them over with gold ſize, and let them remain until it is a little ſticking to the touch. Then lay on the gold, and let that be well cloſed to the gold ſize, and dried; then, if you have a mind to ſhade any part of the flower, trace over the ſhady parts on the leaf gold with a fine camel's hair pencil, and ſome ox-gall, and then paint upon that with deep Dutch pink; and when that is dry uſe the varniſh in a warm place, i. e. that varniſh directed for the covering of gold; and when you have done ſet it to harden by degrees in an oven. This varniſh will ſecure the leaf gold, or German metal from changing, by keeping the air from it.

The method of ſilvering theſe JAPAN *veſſels.* After the veſſels have been made, and are thoroughly dried, do them over with ſize, and with ground chalk or whiting; let them ſtand by till they are very dry, and then paint them over again with the brighteſt gold ſize you can get, for there is a great deal of difference in the colour of it; ſome of it is almoſt white, and other yellow; the latter is proper for gold, and the former for ſilver. When this ſize is almoſt dry, lay on the leaf ſilver, and cloſe it well to the ſize, bruſhing off the looſe parts, when it is dry, with ſome cotton.

When you lay on your leaf ſilver or leaf gold, keep it free from the air; for the leaſt motion of the air will rumple the leaves, and they will not lie ſmooth; then uſe the following varniſh to cover the ſilver.

To make the varniſh to cover the ſilver. Melt ſome fine turpentine in a well glazed pipkin; then take an ounce and an half of white amber well pulveriſed, put it by degrees into the turpentine, ſtirring it well, till the amber is all diſſolved; then put to it half an ounce of ſarcocolla powdered, and half an ounce of gum elemi well levigated; pouring in at times more of the turpentine ſpirit,

till all is diſſolved. Let it be done over a gentle fire, and keep ſtirring the mixture continually while it is on the fire.

This varniſh will be as white and ſtrong as the former, and muſt be uſed warm, and is as ſtrong as that which is laid upon gold; and is to be afterwards hardened by degrees in an oven, as the gold varniſh, and the veſſel will look like poliſhed ſilver.

Directions in colouring draughts or prints of birds, flowers, &c. in JAPANNING *theſe veſſels.* If the prints or drawings of flowers be in black and white, if the center of the flower is riſing, you muſt touch the edges of the lights with a thin tincture of gamboge, and lay on ſome Dutch pink or gall-ſtone over the ſhades, ſo as to run into the lights a very little.

This is to be done, becauſe the thrums in the middle of flowers are generally yellow; but if of any other colour, as ſometimes blue, &c. ſometimes lighter, and ſometimes darker; then touch the verges of the lights with a little ultramarine blue, and over the ſhades either ſome ſanders blue, to run a little into the ultramarine, or elſe ſhade with indigo; and ſome of the white of the print, being left void of colour, will then give life and ſpirit to the colours ſo diſpoſed.

All flowers ſhould be tenderly touched in the light, juſt to give a little glare into the light parts of the colour you would give to the flower leaves; and, if you paint by a natural flower, you will preſently ſee that on the ſhady ſide you muſt lay on the moſt ſhady part ſuch a colour as will force the reſt to appear forward: But do not daub over the ſhades with too heavy a colour; let it be ſuch as may be tranſparent, if poſſible, and ſcumble it into the light colour that was laid on before. On this occaſion the pencil muſt be uſed but lightly, with a very little gum water in it; and it muſt be uſed before the colours are quite dry.

In painting the leaves of plants and herbs, regard muſt be had to the colours of the greens; that ſometimes being the chief diſtinguiſhing character.

Of greens, verdigreaſe is the lighteſt; therefore that colour ſhould be touched into the light parts of the leaf, from the place where the lighter parts of the ſhades end: And then on the ſhady parts lay on ſome ſap green, ſo as to unite with the verdigreaſe green; and, if the natural leaf ſhould be of a darkiſh colour, touch the lighter ſides of the leaves with a little verdigreaſe green, and Dutch yellow pink, mixed together, or with a tincture of French berries; but ſo as to let the verdigreaſe ſhine more than the pink.

The leaving the lights in colouring a print has two advantages, viz.

If the lights be left on this occaſion, the whiteneſs of the paper ſerves inſtead of the uſe of white paint, which is an heavy colour, and would rather confound thoſe that have been pre-

ſcribed to be laid on, than do them any ſervice; but the colours before directed, where there is no white laid on, will ſhine agreeably into the white of the paper.

I am the more particular in this, becauſe ſome perſons will lay a blue flower all over with one colour, though it be thick enough to hide both the lights and ſhades; and then it will look like a penny picture, where there is nothing but a jumble of reds, blues, and greens.

In ſuch pieces of work be ſure to ſcumble the lights into the ſhades of every colour, and leave the middle of the lights open on the papers; for, as the paper is white of itſelf, it makes a light.

To JAPAN *braſs, ſuch as is uſed to gild braſs buttons, or make them look like gold.* This may be uſed upon leaf gold, or upon what is called the German leaf gold, or upon braſs, or upon Bath metal, which are deſigned to imitate gold.

Take a pint of ſpirit of wine, and put it into a retort-glaſs; then add a quarter of an ounce of gamboge; half an ounce of lake, and half an ounce of gum maſtic; ſet this in a ſand-heat for ſix days, or near the fire, or put the body of the retort frequently in warm water, ſhaking it twice or thrice a day; then ſet it over a pan of warm ſmall-coal duſt; and, having firſt well cleaned the metal, do it over thinly with this varniſh, and it will appear of the colour of gold; it may be dried in a declining oven, and it will not rub off.

N. B. This is a good varniſh to mix with any colours that incline to red; and the white varniſh to mix with thoſe colours that are pale, or of any other ſort.

JARGONS *of Avernia, to make thoſe red that are of a gridelin colour.* Theſe Jargons are little ſtones commonly found in that country, and ſeveral other places in France.

They are red and ſhining like the jacinth, which has gained them the name of falſe jacinths, becauſe they much imitate that precious ſtone.

But there are many of theſe ſmall ſtones found, which are not of a red colour, but a kind of gridelin.

To theſe you may give a red tincture with as much eaſe as you can take it away from the other, to convert them into diamonds.

To give a red colour to Jargons, that are of a gridelin, you muſt take equal parts of purified ſal armoniac, and of tartar calcined to whiteneſs, as is ſhewn elſewhere; which mix well in fine powder; then ſtratify the Jargons in a crucible, layer upon layer, beginning and ending with the powders.

Then put the crucible in a good coal fire, but not hot enough for the ſtones to melt; but only to grow red-hot, that they may be the better penetrated by the tincture the materials will give it. Then let it cool; and by this method they will take as fine

and ſhining a red tincture, as the true and fineſt natural Jargons of this colour have.

The way of extracting a tincture of JARGON *de Auvergne, and to make very fair and hard diamonds of them.* Theſe ſtones may be made white and hard, like true diamonds, by taking away their tincture, which is no deſpicable ſecret; there have been roſe diamonds made of them ſo fine that the beſt goldſmiths have been miſtaken in them, and thought them true diamonds.

Theſe Jargons muſt be boiled in a balneum of mutton ſuet, wherein they will loſe all their red colour, and become white.

Then take equal parts of emery of Spain, rock cryſtal, pumice ſtone, and ſulphureous tripoli, the whole reduced into fine powder, and ſearced through a fine ſieve; make a paſte of it with aqua-vitæ, and with this cement your Jargons in a large crucible, layer upon layer; then cover with another, and lute them well; then ſet it in a furnace over a gentle fire for half an hour; then augment your fire till it be hot enough for fuſion, in which leave the whole for fourteen hours: Then let the fire go out, and the crucible cool of itſelf, wherein, after you have broke it, you will find your ſtones of a very fine diamond colour, hard, ſhining, and ſparkling, like the true ones, which you may have poliſhed and worked up.

This ſulphureous tripoli, which enters into the compoſition of this paſte, being not commonly known, I ſhall ſhew the way of making it as follows:

Take equal parts of tripoli, crude antimony, and common ſulphur, and grind them to a fine powder on a porphyry ſtone, and make them into a paſte with vinegar; which, when it is dry, will eaſily crumble.

This is the ſulphureous tripoli, made uſe of for this purpoſe.

Some perſons, in taking away the colour from Jargons, and giving them the hardneſs and whiteneſs of diamonds, have made uſe of barley meal; making a paſte with it, and diſtilled vinegar, impregnated with lead, with which they ſtratify the ſtones or Jargons in a crucible, covered with another, and well luted; which they afterwards put in a gradual, round, or wheel fire for ſix hours. But this way they could not give them the true diamond colour.

Some alſo ſtratify their ſtones with pounded coal, which they put in a crucible, covered and luted, which they ſet on the fire for ſix hours, ſo that the crucible be always red-hot.

But this way is not to be approved, becauſe the coals may dry the humours of the ſtone, and calcine it.

JASPER, is a precious ſtone, that does not differ much from the agate, excepting that it is ſofter, and does not take ſo good a poliſh.

In ſome Jaſpers nature has amuſed herſelf, in repreſenting rivers, trees, animals, landſcapes, &c. as if they were painted.

The florid Jaſper, found in the Pyrenean, is uſually ſtained with various colours; though there are ſome which have but one colour, as red or green; but theſe are the leaſt valuable.

The moſt beautiful is that bordering on the colour of laque or purple; next to that, the carnation: But what is now uſually taken, is green ſpotted with red.

JASSEMIN, in miniature, cover it with a lay of white, ſhaded with black and white. For the outſide of the leaves add a little biſtre, giving the half of each on that ſide a faint reddiſh caſt of carmine.

J. B. ſignifies James Binchius.

J. B. and a bird, is another different mark of a different author in a David, who ſets his foot on Goliath's head, after Albert Durer's manner.

J. BONASO F. 1544.
J. B. F.
JULIO B. } ſtands for Julio Bonaſoni fecit.

J. B. M. ſignifies John Baptiſta of Mantua, who was ſcholar to Julio Romano; he engraved the burning of Troy, and other pieces of his own invention.

J. B. F. ſtand for James Belli, a Frenchman, fecit, or Belli fecit.

J. C. *inv.* ſignifies Julius Cæſar Procaccinus inventor.

ICONOGRAPHY, deſcription of images, or of ancient ſtatues of marbles and copper, of buſts and ſemi-buſts, of paintings in freſco, moſaic works, and ancient pieces of miniature.

ICTHYOCOLLA, iſing-glaſs: Schroder tells us, it is made from a fiſh, which is common in the Danube; the fiſh having no bones but about the head.

After it is cut in ſmall pieces, they boil it in water to a thick jelly, which is ſpread abroad and dried, then rolled up, and brought to us in the form we ſee it in the ſhops.

IDEA, is repreſented, in painting, &c. by a beautiful lady, rapped into the air, covering her nakedneſs only with a fine white veil; a flame on her head, her forehead ſurrounded with a circle of gold, ſet with jewels; ſhe has the image of nature in her arms, to which ſhe gives ſuck, and points at a very fine country underneath.—She is in the air, becauſe immaterial, and conſequently immutable; naked, exempt from corporeal paſſions; the white veil denotes the purity of ideas, differing from corporeal things; the golden circle denotes the perfection of Ideas, being the model of all things; the country pointed at, the inferior ſenſible world.

IDOLATRY, is repreſented, in painting, &c. by a woman blind, upon her knees offering incenſe to the ſtatue of a brazen bull. Blind, becauſe ſhe does not rightly perceive whom ſhe

ought principally to adore and worſhip; it needs no farther explanation, for all thoſe acts of adoration ſhe blindly renders to creatures, whereas ſhe ought to adore her Creator only.

JEALOUSY. This paſſion wrinkles the forehead, the eye-brows are ſunk down and knit, and the eye-ball is half hid under the eye-brows, which turn towards the object; it ſhould appear full of fire, as well as the white of the eye, and the eye-lid; the noſtrils are pale, more open, and more marked than ordinary, and drawn backwards, ſo as to make wrinkles in the cheeks. The mouth is ſo ſhut, as to ſhew that the teeth are cloſed; the corners of the mouth are drawn back, and very much ſunk down; the muſcles of the jaws appear ſunk; the colour of the face is partly inflamed, and partly yellowiſh; the lips pale or livid. And thus it muſt be deſcribed in drawing, &c. Plate XXVIII. of Vol. I.

JET, ſometimes called black amber, is a mineral, or a foſſile ſtone, extremely black, formed of a lapidific, or bituminous juice in the earth, in the manner of coal: It works like amber, and has moſt of its qualities.

It abounds in Dauphiné; but the beſt in the world is ſaid to be produced in ſome of the northern parts of England.

There is alſo a factitious Jet made of glaſs, in imitation of the mineral Jet.

This is drawn out into long hollow ſtrings, which are cut, and formed at pleaſure. It is much uſed in embroideries, and in the trimmings of mourning, and may be made of any colour, tho' they are uſually black and white.

J. G. *Van Uliet*, is the ſame as James Grandehomme.

IGNOBLENESS, is repreſented, in painting, &c. by a woman in a ſhort garment, becauſe it was permitted to none, but noble women, to wear long robes. Her hair uncombed denotes low plebeian thoughts, that never riſe to any thing conſiderable; her aſſes ears, that ſhe is indocile; an owl on her head, which differs from the ordinary birds, and their ſpecies, in not being known; as the plebeian has no pedigree: Her ſweeping with a broom ſhews, that the vulgar are employed in ſervile things, not capable of divine, moral, or natural ones.

J. H. ſtands for Jerom Hopfer.

J. K. ſtands for James Kewer.

J. L. fec. ſignifies Johannes Livius fecit. He engraved after Rembrant's manner.

I. M. ſtands for Iſrael Meck in certain ſubjects of the paſſion, and other plates, ſee I. V. M. The ſame mark was alſo uſed by Iſrael Martino, ſuppoſed to be the ſame with Bon Martino, who lived in 1490.

IMITATION, is repreſented, in painting, &c. by a woman holding

holding pencils in her right hand, a mask in her left, and an ape at her feet.—The pencils are the instruments of the art that imitates colours; and the figure produced by nature, or by art itself; the mask and ape demonstrate the imitation of human actions; the ape imitates men, and the other the deportment of men upon the stage.

IMPERIAL *lilly*, in miniature; this flower is of two colours, viz. yellow and red, or orange colour.

Colour the first with orpiment, and shade with gall-stone and a little vermilion.—Cover the second with orpiment and vermilion, and shade with gall-stone and vermilion, doing the beginning of the leaves, next to the stalk, with lake and bistre very deep, and all veins of this mixture along the leaf.—Do the green with verditer and masticote, shaded with iris and gamboge.

INCONSTANCY, is represented, in painting, &c. by a woman all in blue, setting her foot upon a great crab; like the cancer in the zodiac; with the moon in her hand. The crab denotes irresolution, it going sometimes forward, and sometimes backwards; so do fickle men; the moon, changeableness, never remaining for one hour the same; the blue resembles the colour of the waves of the sea, which are extremely inconstant.

INDIAN *ink*. *See Indian* INK. *How to draw with* INDIAN *ink*. This is to be done after the manner of washing, or, instead of Indian, you may temper lamp-black or burnt bread.

Temper either of these in fair water, in a shell, or upon your hand; and, the outlines having been first drawn with a coal or black lead, dip the point of an indifferent sharp pencil into fair water, and then into the Indian ink, and draw all the outlines of your picture very faintly.

2. Take notice, that all the temperature of Indian ink must be very thin, waterish, and not too black.

3. When it is dry, rub out the outlines which you drew with the coal, with a bit of stale white bread; if too black, then dash on your shadows very faintly, and deepen by degrees at pleasure; and finish it with stipples, it being most advantageous to any one who shall practise limning.

4. Be sure not to take too much ink in your pencil, which you may prevent by drawing it through your lips.

5. Never lay your shadows on too deep, but deepen them down by degrees; for, if they are too deep, they cannot be heightened again.

INDIAN *red*, is a colour of a body; yet is useful for a background for flowers, at a distance, being used with gum water.

There is also an earth brought from the Isle of Wight, which has been found to mix extremely well with gum water; though, it being of a viscous nature, it requires less gum than most other

colours, and as it is naturally fit for uſe without grinding, and is viſcous, ſo it will, without doubt, mix with oil, as well as with water.

There is one thing very extraordinary in this earth, i. e. that, if you rub a deal-board with it, it makes it exactly of the colour of mohogany wood, and ſtains it ſo deep, and with ſo much ſtrength, that it is hard to get it out with waſhing.

And, though the earth is very dry, yet it has not been able to be got out of papers, in which it has been carried in a pocket.

INDIAN *bean*, to paint, in miniature, ſhade the middle leaves with lake only; and add to it a little ultramarine for the reſt, as for the green, verditer, and ſhade with iris.

INDIAN *wood*, called alſo Jamaica and Campeche wood, is taken out of the heart of a large tree, growing plentifully in the iſles of Jamaica, Campeche, &c. It is uſed in dying; its decoction is very red; and it has been obſerved, that putting ſome of this decoction into two bottles, and mixing a little powder of alum with the one, it will become of a very beautiful red, which will hold; the other in a day's time becoming yellow, though both bottles were ſtopped from the air alike; and, if a little of the ſame decoction were expoſed to the air, it would become as black as ink, in the ſame ſpace of time.

INDIGO, a drug of a deep blue colour, brought hither from the Weſt-Indies.

It is made of the leaves of a plant, called by the Spaniards anil, and by us Indigo.

The method of preparing it is as follows:

When the plant has grown to a certain height, and its leaves are in a good condition, they cut down, and throw it into a kind of vat, putting to them as much water as will cover them.

Theſe are boiled together for the ſpace of twenty-four hours; and at the top ſwims a ſcum, with all the different colours of the rainbow.

Then the water is let off into another veſſel, where they agitate it, and ſtir it about laborioufly, with five or ſix poles fitted for that purpoſe. This they do till the water becomes of a deep green, and till the grain, as they call it, forms itſelf; which they diſcover, by taking a little of it out into another veſſel, and ſpitting in it; for, if then they perceive a bluiſh dreg ſubſiding, they ceaſe beating it. The matter then precipitates of itſelf, to the bottom of the veſſel; and when it is well ſettled they pour off the water.

After this, they take off the Indigo, and put it into little linen bags, and let it drain; this done, they put it into ſhallow wooden boxes, and when it begins to dry they cut it into ſlices, and ſet them to dry and harden in the ſun.

There

There are ſeveral ſorts of Indigo; the beſt is that called Serquiſſe, after the name of a village where it is prepared.

We chuſe it in flat pieces of a moderate thickneſs, pretty hard, clean, light enough to ſwim in the water, inflammable, of a fine blue colour, marked a little on the inſide with ſilver ſtreaks, and appearing reddiſh when rubbed on the nail.

Indigo is uſed by painters, who grind it and mix it with white, to make a blue colour; for, without that mixture, it would paint blackiſh.

It is alſo mixed with yellow, to make a green colour. It is alſo uſed by dyers.

To prepare for the INDIGO *dye.* You muſt firſt have the ground of a dye, which is to be put into the kettle, and made as warm as you can bear it; and afterwards prepare a ley of pot-aſhes.

The kettle muſt be firſt filled with water and made to boil, then the pot-aſhes are to be put in; boil them, and then put in a bowl-full of bran, and three handfuls of madder; boil them all for a quarter of an hour; then remove the fire, and pound the Indigo in a mortar to an impalpable powder, and pour ſome of the ley upon it. Let it ſtand to ſettle, and then pour ſome of the Indigo dye into the blue dye copper, and proceed thus, till the proper quantity of Indigo is turned into the dye; then beat what remains a ſecond time, and let it ſtand to ſettle, and pour the ley into the blue copper, repeating this till you have turned a proper quantity of Indigo to ley, which muſt all be poured into the copper; then you muſt proceed to dye your ſtuffs, &c.

The INDIGO *dye.* Allow to every quarter of a pound of Indigo a pound and a half of pot-aſhes, a quarter of a pound of madder, and three handfuls of wheaten bran; boil theſe for ſeven or eight minutes, and then let it ſtand to ſettle; pour off the clear part of the ſuds or liquor, and pound the Indigo very fine, and mix it with a ſufficient quantity of freſh woad, or ſtale Indigo; and then pour the ſuds upon it, and let it boil for twenty-four hours, and it will be ready to dye withal.

To prepare the dye copper. Firſt throw in a pint of wheaten bran, next to that the woad, and after that two pounds of madder; then fill the copper with water, and make it boil for three hours; then pour it off into the vat, and let it ſtand till it is of a due conſiſtence; then boil the copper full of water, and pour it into the dye ſuds, and cover it up warm; let it ſtand two hours to ſettle, and look upon it every hour, till it becomes blue.

Then, according to the quantity of ſtuffs to be dyed, put in three or four pounds of Indigo, and three pound of pot aſhes; let it ſtand to ſettle and dye with this liquor, taking care always to ſtir it; cover it cloſe, and let it ſtand two hours after every time you

you have dyed with it; after which time you may dye with it again, adding a ſufficient quantity of lime, if you uſe it often, always letting it ſtand two hours, and then adding lime and ſtirring it.

How to prepare the INDIGO *dye for the ley, in conjunction with the* Provence *blue, and make it laſting for ſtuffs, ſilks, woollen, and linen.* If the ware is to have a deep dye, you muſt firſt prepare it in tartar and vitriol; but, if of a light dye, in alum and tartar.

Boil three pounds of brown wood in a bag, in a kettle of water, for half an hour; then take it out and dry it, and let the dye grow cool enough for you to bear your hand in it; then make uſe of your Indigo and aſhes, as in the direction for the blue dye, with all the reſt of the uſeful and remedying drugs, from beginning to the end, as there directed.

When the blue dye has ſtood twenty-four hours, and the Indigo has come to its perfect ſtrength, and begins to be blue, firſt dye what you would have of a deep blue, and the lighteſt laſt; and, having worked the dye half an hour, let it reſt for an hour, and ſo on as long as you work it.

If the ley be too weak, you may ſtrengthen it at pleaſure.

INDOCIBILITY, is repreſented, in painting, &c. by a woman of a ruddy complexion, lying all along, holding an aſs by the bridle, the bit in his mouth, in one hand, and leans her elbow of the right arm upon an hog on the ground, a black hood on her head.—On the ground ſignifies her Indocility, not being able to riſe higher, but ſtands ſtill; her ignorance is imitated by the aſs. The hog denotes inſenſibility and ſtupidity, never being good till dead. The hood intimates, that black never takes any other colour.

INGENUITY, is repreſented, in painting, &c. by a young ſpark of a vehement daring aſpect; with a helmet, whoſe creſt is an eagle's wings of divers colours on his ſhoulders, with a bow and arrow, as if he would let fly.—This youth ſhews that the intellect never grows old; his aſpect, ſtrength and vigour; the eagle, generoſity and loftineſs; the bow and arrow, inquiſitiveneſs and acuteneſs.

INJUSTICE, is repreſented, in painting, &c. by a man in a white garment full of ſpots; a ſword in one hand, and a globe in the other; the tables of the law all broken to pieces on the ground; blind of the right eye; trampling on the balance. The garment denotes Injuſtice to be the corruption and ſtain of the mind; the laws broken, the non-obſervance of them, being deſpiſed by malefactors; and due weighing of matters neglected is intimated by the balance. The blind eye ſhews that he ſees only with the left, that is, what is for his own intereſt.

INK,

INK, *a very good black for writing.* Take rain water two quarts, nut-galls bruiſed half a pound, copperas four ounces, alum four ounces; infuſe all in a gentle heat for a month, add gum arabic four ounces, which diſſolve in it, and keep the mixture for uſe.

Another very good INK *for writing.* Take ponderous galls, three ounces; reduce them to powder, infuſe them in three pints of rain water, ſetting it in the ſun or a gentle heat for two days; then take common vitriol three ounces, powder it, put it in, and ſet it in the ſun for two days more, ſhake it well, and add an ounce of good gum arabic.

To make the London powder INK. Take ten ounces of the cleareſt nut-galls, bruiſe them and ſift the powder very fine; then add two ounces of white copperas, four ounces of Roman vitriol, gum arabic or ſandarach an ounce; pound and ſift them very fine, ſo that though they appear white, a little of it being put into water, it will in a little time turn black; and an ounce of powder will make a pint of very black Ink.

To make Japan, or ſhining INK. Take gum arabic and Roman vitriol of each an ounce, galls well bruiſed a pound, put them into rape vinegar, or vinegar made of clear ſmall beer; ſet them in a warm place; ſtir them often till the liquor becomes black; then add to a gallon an ounce of ivory black, and a quarter of a pint of ſeed-lac varniſh, and it will be a curious black ſhining Ink.

To make a powder INK, *to rub on paper.* Take about twenty nut-galls, reduce them to a very fine powder; half an ounce of Roman vitriol, and as much gum arabic and gum ſandarach; powder and ſift them very fine, then mingle them together, and rub the paper hard with a piece of cotton, and poliſh it with a piece of ivory; write with water, and in a little time the letters you write will appear a fine black, as if written with the beſt Ink.

To make China INK. Take lamp-black purified eight ounces, indigo two ounces, ivory black one ounce, peach-ſtone black half an ounce; beat all together, and make a maſs; make it into a paſte with water in which a very little gum arabic has been diſſolved; and ſo form them into long ſquare tablets.

A ſhining Japan or China INK. Take an ounce of lamp-black, and clarify it in an earthen pipkin to take out the droſs; two drachms of indigo, half a drachm of peach black, one drachm of black endive burnt; reduce them to a very fine powder, and then with a moiety of fig-leaf water, and another part of milk, and a very little gum arabic, when they are well mixed, make them up for uſe.

To make Indian INK. Take horſe-beans, burn them till they are perfectly black, grind them to a fine powder, and with a weak

weak gum arabic water make it into a paſte, which form into long ſquare cakes.

To make red writing INK. Take raſpings of braſil one ounce, white lead and alum of each two drachms; grind and mingle them, infuſe them in urine one pound, with two ſcruples of gum arabic, or a drachm at moſt.

Anocher red INK. Take wine vinegar a pint, raſpings of braſil one ounce, alum half an ounce; infuſe all for ten days; then boil it gently, and add to it five drachms of gum arabic; diſſolve the gum, ſtrain and keep it for uſe.

Note, that two drachms of gum in ſome caſes may be enough.

To make red writing INK *with vermilion*, Grind vermilion well upon a porphyry ſtone with common water; dry it and put it into a glaſs veſſel, to which put urine; ſhake it, let it ſettle, then pour off the urine, and put on more urine; repeat this changing the urine eight or ten times; ſo will the vermilion be well cleanſed; to which put glair of eggs to ſwim on it above a finger's breadth; ſtir them together, and when well ſettled abſtract the glair; then put on more glair of eggs, repeating the ſame operation eight or ten times alſo, to take away the ſcent of the urine; laſtly, mix it with freſh glair, and keep it in a glaſs veſſel cloſe ſtopped for uſe; and when you uſe it mix it with water or vinegar.

To make red printing INK. Grind vermilion very well with liquid varniſh or linſeed oil.

To make a blue INK. Grind indigo with honey mixed with glair of eggs, or glue water made of iſing-glaſs, diſſolved in water and ſtrained.

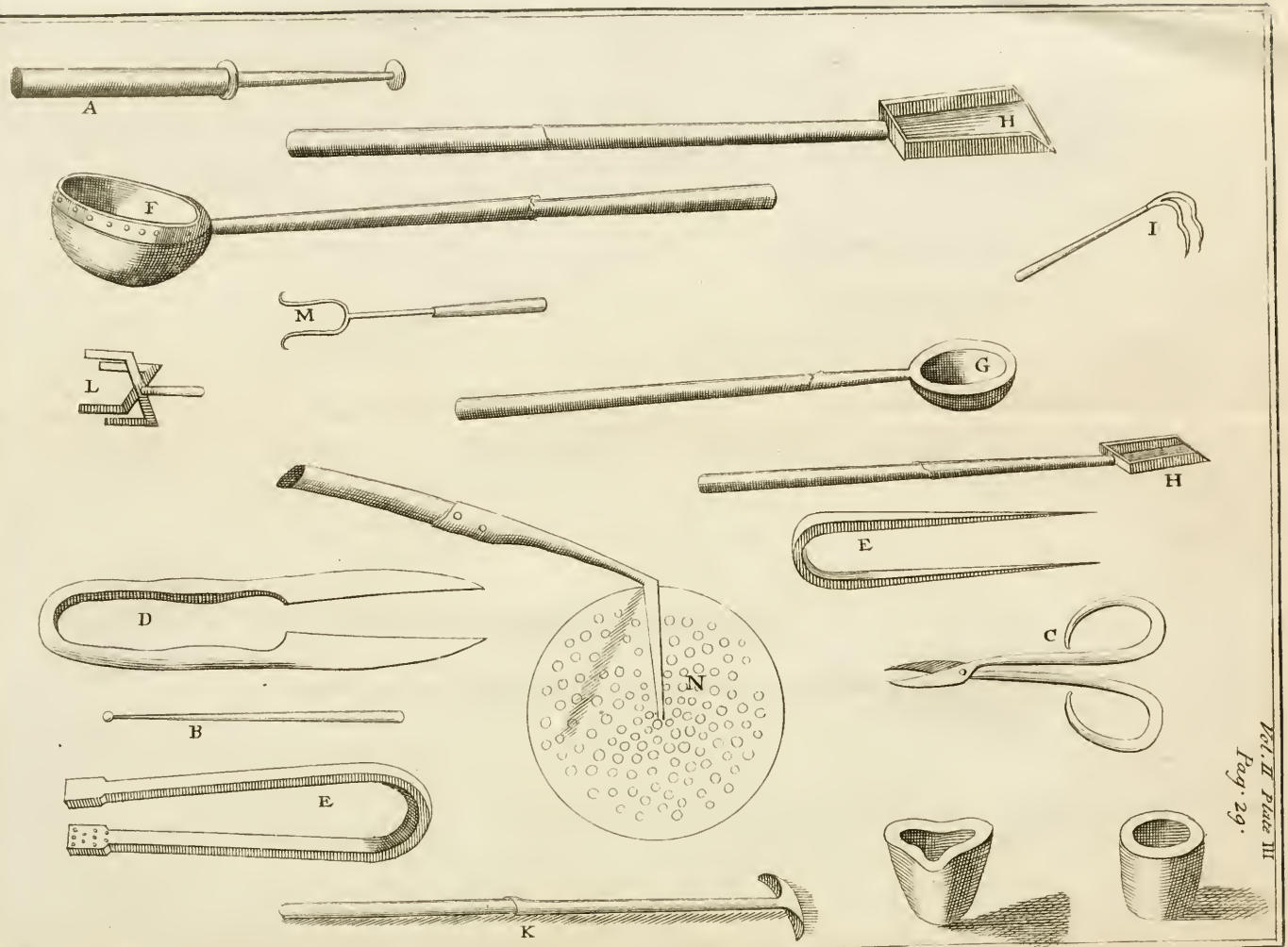
To make green INK *to write with.* Boil verdigreaſe with argol in fair water, and then diſſolve in it a little gum arabic.

A green printing INK. Grind Spaniſh green with liquid varniſh, or linſeed oil; and after the ſame manner you may make a printer's blue, by grinding azure with linſeed oil.

To take INK *out of printed books or pictures.* Wet it with the juice of lemon, and the Ink will diſappear. Spirit of vitriol will do the ſame.

INSPIRATION, is repreſented, in painting, &c. by a glittering ray in a ſtar-light night, darting at the breaſt of a young man in yellow; his hair knotted, mixed with ſerpents; looking up to heaven, holding in one hand a naked ſword, the point to the ground, and a ſun-flower in the other. The ſtarry ſky ſignifies the grace of God inſpiring the mind; the hair, &c. that a ſinner can have only brutiſh and horrid thoughts; looking upwards, that without grace and inſpiration the mind cannot be elevated above earthly things. The heliotrope denotes that, as it always

turns



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turns towards the ſun, ſo a ſinner, once inſpired, turns with all affection towards God.

INSTITUTION, is repreſented, in painting, &c. by a woman, holding in her hand a little baſket with ſwallows in it; which, they ſay, is the hieroglyphic of Inſtitution among the Egyptians, from the benefit given to mortals by Oſyris and Ceres, from whom they received the laws of living well, and the precepts of tilling the ground; Oſyris was taken for Jupiter, and Ceres the goddeſs of corn.

The names of the principal INSTRUMENTS *that are uſed in the art of making glaſs.* See plate III. The hollow pipe, marked A, ſerves to blow the glaſs; it ought to be of iron, with a little wooden handle on the top.

The rod, marked B, ought to be of iron, but not hollow; this ſerves to take up the glaſs after it is blown, and cut off the former, ſo that there remains nothing to do to it, but to perfect it.

The ſciſſors, marked C, are thoſe which ſerve to cut the glaſs when it comes off from the firſt hollow iron, when it is given to the maſter-workman.

The ſheers, marked D, ſerve to cut and ſhape the great glaſſes, as alſo the leſſer, to open them and make them more capacious.

The Inſtruments, marked E, ſerve to finiſh the work, which the Italians call ponteglo, paſſago, procello, ſpiei, and alſo borſello, whereof we want the figure.

The great ladle, marked F, is of iron, the end of the handle being only done over with wood; it is with this you take out the metal of the great pot, when it is refined, and put it into the little ones for the workmen.

The little ladle, marked G, is alſo of iron, and covered with wood at the handle; this ſerves for ſkimming the metal, and taking off the alcalic ſalt which ſwims on the top, as alſo to take the metal out of the pots, and caſt it into water to refine it, after a method to be hereafter treated of in its place.

The great and little ſhovels, or peels, marked H, and which are hollow, having the edges turned up all round except at the end, ſerve only to take up the great glaſſes: The leſs is called the little ſhovel; and they make uſe of one like this to draw out the coals and aſhes of the furnace where the fire is made.

The hooked fork, marked I, ſerves to ſtir the matter in the pots; it ought to be all of iron except the handle.

The rake, marked K, is alſo of iron, and the handle of wood; it ſerves to ſtir the matter, as alſo to move about the frit in the firſt oven.

The Inſtrument, marked L, is for making chamber-pots.

The fork, marked M, is made alſo of iron, and the handle of wood; there are of them of ſeveral bigneſſes; they ſerve to car-

ry

ry the glaſs-works into the upper oven to cool them: They make uſe alſo of forks, in glaſs-houſes, when they change the pots in the furnace.

The great ladle, marked N, is of braſs, hollow, and full of holes about the bigneſs of a pea; its handle towards the bottom is of iron, and the top of wood: This ladle ſerves to take off the alcali ſalt from the kettles, as faſt as the ley evaporates.

There are alſo ſeveral moulds, both of marble and braſs, and alſo of copper, which ſerve to make their forks of ſeveral figures, accordingly as the workman deſigns them in blowing, which would be too tedious here to deſcribe.

INTAGLIO's, are precious ſtones, having the heads of great men, inſcriptions, and the like engraven on them; ſuch as we frequently ſee ſet in rings, ſeals, &c.

INTELLIGENCE, is repreſented, in painting, &c. by a woman, in a golden crape gown, crowned with a garland, holding a ſphere in one hand and a ſerpent in the other.—The gown ſhews that ſhe ſhould be always ſplendid and precious like gold, averſe from abject notions; the ſphere and ſerpent, her creeping along into the principles of natural things, that are more imperfect than ſupernatural, and more ſuitable to the ſphere of our activity.

INVENTION, in painting, &c. is the choice which the painter makes of the objects that are to enter the compoſition of the piece.

Du Pile obſerves, that Invention differs from diſpoſition, and that it is theſe two things together that form compoſition.

For, after having made a good choice of objects proper for the ſubject, they may be ill diſpoſed, and then, though the Invention be never ſo good, the diſpoſition or ordonnance will be faulty, and the piece will diſpleaſe.

Of all the parts of painting, Invention is that which gives the painter the faireſt occaſions of ſhewing his genius, his imagination, and good ſenſe.

M. Felibien gives the name Invention to every thing that depends on the genius of the painter, as the ordonnance, the diſpoſition of the ſubject, and even the ſubject itſelf when it is new.

But the term Invention, taken in this ſenſe, is no term peculiar to painting, but agrees alſo to other arts.

In another place M. Felibien diſtinguiſhes Invention into two kinds, to wit, that which ariſes immediately from the mind of the painter, and that which he borrows from ſome other.

INVENTION, is repreſented, in painting, &c. by a woman: This miſtreſs of arts appears in a white robe, whereon is written Non aliunde; having alſo two little wings on her head; in one hand holding an image of nature, a cuff on the other, with the motto Ad operam.—Youth denotes many ſpirits in the brain, where

where Invention is formed; the white robe, the pureneſs of it, not making uſe of other men's labour, as the motto ſhews; the wings, elevation of intellect; naked arms, her being ever in action, the life of Invention; the image of nature ſhews her Invention.

JO. GUILL. BAURN, ſignifies John-William Baurn.

JO. AN. BX. ſignifies John-Antonius Brixianus, 1538.

JOHN *ab Eyk*, commonly called *John of Bruges*, the happy inventor of the art of painting in oil, anno 1410, diſciple of his brother Hubert; excelled in hiſtory-painting; died in 1441, aged 71 years.

Cornelius JOHNSON, alias *Janſens*, was an excellent painter, both in great and little; but, above all, his portraits were admirably well done. He was born in, and reſided at Amſterdam, from whence he came over into England in the reign of king James I, and drew ſeveral fine pictures after that king, and moſt of the court: He alſo lived in the time of king Charles I, and was contemporary with Van Dyke, but the great fame of that maſter ſoon eclipſed his merits; though it muſt be owned his pictures had more of neat finiſhing, ſmooth painting, and labour in drapery throughout the whole, yet he wanted the true notion of Engliſh beauty, and that freedom of draught which the other was maſter of. He died in London.

Martin JOHNSON, the famous ſeal-engraver, was alſo an extraordinary landſcape-painter after nature,; he was bred, it is true, to engraving ſeals, but painted in his way equal to any body; he arrived at a great excellency in landſcape views, which he ſtudied with application, making a good choice of the delightful proſpects of our country for his ſubjects, which he performed with much judgment, freeneſs, and warmth of colouring: Several of his landſcapes are now in the hands of the curious in England, though they are very ſcarce; he died in London about the beginning of king James the Second's reign.

JONQUIL, to paint in miniature, lay on maſticote and gall-ſtone, and finiſh it with gamboge and gall-ſtones: For the leaves and ſtalks uſe ſea green, ſhaded with iris green.

JOY, is a pleaſant emotion of the ſoul, in which conſiſts the enjoyment of a good, which the impreſſions of the brain repreſent as her's.

If the ſoul be poſſeſſed with Joy, the forehead is ſerene, and the eye-brow without motion, and raiſed in the middle; the eye moderately open and ſmiling; the eye-ball briſk and ſhining; the noſtrils a little open; the corners of the mouth are a little raiſed; the complexion lively; and the cheeks and lips ruddy. See plate XXVIII. of Vol. I.

IRIS, is repreſented, in painting, &c. as a nymph with large wings,

wings, extended like to a ſemicircle, the plumes ſet in rows of divers colours, as yellow, green, red, blue, or purple; her hair hanging before her eyes, her breaſts like clouds, drops of water falling from her body, and in her hand Iris, or the flower-de-lis.

Iris, in painting and miniature, is done as follows:

The Perſian or Indian Iris is done by covering the innermoſt leaves with white, and ſhading them with indigo and green mixed together, leaving a ſmall white ſeparation in the middle of each leaf.

As to the outward leaves, you muſt in the ſame part lay on a lay of maſticote, and ſhade it with gall-ſtone and orpiment, making ſmall, deep, and longiſh dots or ſpots at ſome ſmall diſtance from each other; upon the upper ſide of all the leaf, and at the end of each leaf make large ſpots of biſtre and lake for ſome, and of indigo alone for others, but very deep.

The reſt, and the outſide of the leaves, muſt be of the ſea ſort and maſticote, very pale, and ſhaded with bladder green.

Another ſort of Iris is laid on with purple and white, mixed up with a little more carmine than ultramarine; and, for the ſhades, but eſpecially for the middle leaves, diminiſh the quantity of the white; and, on the contrary, let the ultramarine overpower the carmine; and, with this colour, expreſs veins, leaving a ſmall yellow nervure on the inſide, in the middle of the leaves.

Other Iris's again have this nervure on the firſt leaves, whoſe end only is bluer than the reſt.

Others again are ſhaded and finiſhed with a redder purple, and have alſo a nervure in the middle of the leaves without, which is to be white, and ſhaded with indigo.

Some of them again are yellow, and are done with a lay of orpiment and maſticote, ſhaded with gall-ſtones, with veins of biſtre on the upper ſide of the leaf.

The greens of them all muſt be of the ſea colour, mixed with a little maſticote for the ſtems and ſtalks, and ſhaded with bladder green.

IRON, is a hard, fuſible, and malleable metal, conſiſting of an earth, ſalt, and ſulphur, but all impure, ill-mixed, and digeſted, which render it very liable to ruſt.

It is the hardeſt, drieſt, and moſt difficult to melt of all metals.

It may be ſoftened by heating it often in the fire, hammering it, and letting it cool of itſelf: And extinguiſhing it in water hardens it.

It may be rendered white by cooling it in ſal armoniac and quick-lime.

The ſtrongeſt temper of Iron is ſaid to be that which takes in the juice of ſtrained worms.

A red-hot Iron, applied to a roll of ſulphur, will diſſolve and fall

fall into a fine duſt; or, dropped into water, will compoſe grains, which is called granulating it.

There are ſeveral kinds of Iron, which have properties very different from one another.

1. Engliſh Iron, which is coarſe, hard, and brittle, fit for fire-bars and ſuch uſes.

2. Swediſh Iron, which of all others is the beſt uſed in England: It is fine and tough, and will beſt endure the hammer, is ſofteſt to file, and in all other reſpects the beſt to work upon.

3. Spaniſh Iron, which would be as good as the Swediſh, were it not ſubject to red-ſear, i. e. crack betwixt hot and cold.

4. German Iron; this ſort is called Dort-ſquare, becauſe it is wrought into bars of three quarters of an inch ſquare, and is brought to us from Dort. This is a coarſe Iron, and only fit for ordinary uſes.

There is another ſort uſed for making of wire, which is the ſofteſt and toughest of all.

This laſt is not peculiar to any country; but is indifferently made wherever Iron is made, though of the worſt ſort; for it is the firſt Iron that runs from the mine-ſtone when it is melting, and is reſerved purely for making wire.

Generally ſpeaking, the beſt Iron is the ſofteſt and toughest, and that which, when it breaks, is of an even greyiſh colour, without any of thoſe glittering ſpecks, or any flaws or diviſions, like thoſe ſeen in broken antimony.

To give IRON *a blue colour.* With a grinding-ſtone rub off the black ſcurf, then heat it in the fire, and, as it grows hot, it will change colour by degrees; become firſt of a gold colour, and then of a beautiful blue.

Sometimes the workmen rub a mixture of indigo and ſallad-oil on it while it is heating, and let it cool of itſelf.

IRON *ores* } Of theſe we have a great number in moſt parts
IRON *works* } of England; but thoſe in the foreſt of Dean in Glouceſterſhire are in the greateſt repute; the ore is there found in great abundance, differing much in colour, weight, and goodneſs.

The beſt, which is called bruſh ore, is of a bluiſh colour, very ponderous, and full of little ſhining ſpecks like grains of ſilver; this yields the greateſt quantity of Iron, but, being melted alone, produces an Iron very ſhort and brittle, and therefore not ſo fit for common uſe.

For the remedying of which, the workmen make uſe of another ſort of material, which they call cinder; which is nothing but the refuſe of the ore, after the metal has been extracted, and which, being mingled with the other in a due quantity, gives it the excellent temper of toughneſs, which is the cauſe that this Iron is preferred before any other that comes from foreign parts.

After they have procured a ſufficient quantity of ore, the firſt operation is the calcining of it; this is performed in kilns, much after the faſhion of our ordinary lime-kilns; theſe kilns are filled up to the top with the coal and ore, layer upon layer, and, fire being lighted at the bottom, they let it burn till the coal is waſted; and then renew the kilns with freſh ore and coals, after the ſame manner as before.

This is done without fuſing, i. e. melting of the metal, and ſerves to conſume the more droſſy part of the ore, and to make it malleable, ſupplying the place of the beatings and waſhings uſed in other metals.

From hence it is carried to the furnaces, which are built either of brick or ſtone, about 24 feet ſquare on the outſide, and near 30 feet in height within, but not above eight or ten feet over at the wideſt part, which is at the middle; the top and bottom having a narrow compaſs much of an oval form.

Behind the furnace are fixed two huge pair of bellows, the noſes of which meet at a little hole near the bottom; theſe are compreſſed together by certain buttons, placed on the axis of a very large wheel, which is turned by water, in the manner of an overſhot mill.

At firſt theſe furnaces are filled with ore and cinder, intermixed with the fuel, which is charcoal, laid hollow at the bottom, that it may more eaſily take fire; but, after it has once kindled, the materials run together in a hard cake or lump, which is borne by the form of the furnace; and through this the metal, as it melts, trickles down into the receivers, which are placed at the bottom, where there is a paſſage open, by which the men take away the ſcum and droſs, and let out the metal as they ſee occaſion.

A large bed of ſand lies before the mouth of the furnace, in which are made furrows, of the ſhapes into which they would have the Iron caſt.

As ſoon as the receivers are full, they let in the metal, which is made ſo very fluid, that it not only runs to a conſiderable diſtance, but ſtands afterwards boiling for a good while.

When the furnaces are once at work, they are kept conſtantly employed for many months together, never ſuffering the fire to ſlacken night or day; but ſtill ſupplying the waſting of the fuel and other materials, with freſh, poured in at top: They uſe charcoal altogether in this work, for ſea-coal will not do.

From theſe furnaces the workmen bring their ſows and pigs of Iron to the forges, where they are wrought into bars.

To gild IRON *or ſteel.* Take tartar two ounces, vermilion ſix ounces, bole armoniac and aqua-vitæ, of each four ounces; grind them together with linſeed oil, and put to them the quantity of two hazle-nuts of lapis calaminaris, and grind therewith in the

end a few drops of varniſh; take it off the ſtone, ſtrain it through a linen cloth, for it muſt be as thick as honey; then ſtrike it over Iron or ſteel, and let it dry; ſo lay on your ſilver or gold, and burniſh it.

To gild IRON *with water.* Take ſpring water three pounds, as many ounces of roch alum, Roman vitriol and orpiment, of each one ounce; verdigreaſe 24 grains, ſal gemma three ounces; boil all together, and, when it begins to boil, put in tartar and bay-ſalt, of each half an ounce; continue the boiling a good while; then take it from the fire, and ſtrike the Iron over with it; dry it againſt the fire, and burniſh it.

To lay gold on IRON *or other metals.* Take of liquid varniſh two pounds, linſeed oil and turpentine, of each two ounces; mix them well together, and ſtrike them over Iron or any other metal; and afterwards lay on leaf gold or ſilver, and when it is dry poliſh it.

To gild IRON. Grind roch alum with the urine of a boy, till it is well diſſolved; heat the Iron red-hot in a fire of wood-coals, and anoint the Iron with the liquor, and it will look like gold.

To make IRON *of the colour of gold.* Take linſeed oil ſix ounces, tartar four ounces, yolks of eggs boiled hard and beaten four ounces, aloes one ounce, ſaffron ten grains, turmeric four grains; boil all together in an earthen veſſel, and anoint the Iron with the oil, and it will look like gold.

To ſoften IRON. Put alum, ſal armoniac, and tartar, of each a like quantity, into good vinegar; ſet them on the fire; heat the Iron, and quench it in this liquor, or quench it four or five times in oil, in which melted lead hath been put ſix or ſeven times.

To harden IRON *or ſteel.* Quench it ſix or ſeven times in hogs blood, mixed with gooſe-greaſe at each time, drying it at the fire before you dip it in again; and it will become very hard, and not brittle.

To ſolder IRON. Put the joints of Iron together as cloſe as you can, lay them in a glowing fire, and take of Venice glaſs in powder; and, the Iron being red-hot, caſt the powder upon it, and it will ſolder itſelf.

To keep IRON *from ruſting.* Rub the Iron over with vinegar mixed with ceruſs, or with the marrow of a heart; if it be ruſty, oil of tartar per deliquium, and it will preſently take the ruſt away and cleanſe it.

To preſerve IRON *work from ruſt, and other injuries of a corroding air by an oily varniſh.* Take good Venetian, or, for want of that, the beſt and cleareſt turpentine; diſſolve it in oil of turpentine, and add to it ſome linſeed oil, made clear by long ſtanding in the hot ſun; for ſome uſes common drying linſeed oil may

ſerve; mix them well together, and with this mixture varniſh over any ſort of bright Iron work whatſoever.

It is a certain preſerver of all ſuch Iron work from ruſt, let it be what it will, provided it be ſuch as is not brought into common uſe; for much handling will wear it off, and heat will diſſolve it; but for all ſuch bright Iron work that is uſed about either carpenters or joiners work, that require not much handling; as alſo arms, &c. that hang up for ſtate rather than preſent uſe; it is an infallible preſervative.

When you uſe this oily varniſh, it is beſt to warm it, and then with a bruſh lay it on as thin as poſſible; this is beſt for arms; but for other Iron work it may be laid on cold; in four or five days after it has been laid on it will be thoroughly dry.

Note, That ſuch arms as have been done over with it may, when they come into uſe, be cleanſed from it again, by being warmed hot before a fire; for heat will diſſolve it, but water will do it no hurt.

IRRESOLUTION, is repreſented, in painting, &c. by an old woman ſitting; a black cloth wrapped about her head; in each hand a crow ſeeming to croak.—Sitting, becauſe, knowing the difficulty of things, ſhe does not deliberate which is beſt; in old age, becauſe long experience makes men unreſolved; the crow, ſeeming to croak out Cras, Cras, intimates mens putting off from day to day, when they ſhould diſpatch affairs in the preſent time; the black cloth denotes obſcurity in her intellect, making her to be in a quandary.

J. S. ſignifies Juſtin Sadeler. John Saenreden uſed the like mark, joining the J. to the S.

J. S. B. ſignified John Sebald Beham.

J. V. M. ſignified Iſrael Van Mechelin or Mechelini, or Van Meck; and of Lomazzo, ſurnamed of Mentz. He lived before Albert Durer, and ſometimes marked his plates with the name Iſrael only.

JUDGMENT, is repreſented, in painting, &c. by a naked man attempting to ſit on a rainbow, holding a ſquare, a rule, compaſſes, and a pendulum in his hand.—The inſtruments denote diſcourſe, and the choice ingenuity ſhould make of methods to underſtand and judge of any thing; for he judges not aright, who would meaſure every thing by one and the ſame manner: The rainbow indicates, that much experience teaches judgment, as the rainbow reſults from the appearance of divers colours, brought near one another by virtue of the ſun-beams.

Juſt JUDGMENT, is repreſented, in painting, &c. by a man in a long grave robe, with a human heart for a jewel, engraved with the image of truth: He ſtands with his head inclined, and his eyes fixed on open law-books at his feet, which denotes integrity

grity in a judge, who never ought to take his eyes off the juſtice of the laws, and contemplation of naked truth.

JULY, is repreſented, in painting, &c. in a garment of a light yellow colour, eating cherries, with his face and boſom ſun-burnt; on his head a garland of centaury and thyme; on his ſhoulder a ſcythe; with a bottle at his girdle; and carrying a lion.

JUNE, is repreſented in a mantle of dark graſs green; upon his head a coronet of bents, king-cups, and maiden-hair; holding in his left hand an angle, in his right Cancer, and upon his arm a baſket of ſummer fruits.

JUNO, was repreſented, in painting, &c. by the ancients, by a woman of a middle age, holding a ſilver veſſel in one hand, and a ſharp ſpear in the other.

Homer repreſents her drawn in a chariot glittering with precious ſtones, the wheels of which were ebony, and the nails fine ſilver, mounted upon a ſeat of ſilver, and drawn with horſes, which were faſtened with chains of gold.

She is frequently painted with a ſcepter in her hand, to ſhew that ſhe hath the beſtowing of governments, authorities, and kingdoms.

Martianus repreſents her ſitting in a chair under Jupiter, with a thin veil over her head, crowned with a coronet inchaſed and adorned with many precious jewels; her inward veſtment fine and glittering, over which hung down a mantle of a darkiſh colour, yet with a ſecret ſhining beauty; her ſhoes of an obſcure and ſable colour; in her right hand holding a thunder-bolt, and in her other a loud noiſy cymbal.

Pauſanias tells us, that, in a temple in Corinth, her ſtatue, made of gold and ivory, was adorned with a glorious crown, on which were engraven the pictures of the graces; ſhe holding in one hand a pomegranate, and in the other a ſcepter, on the top of which was a cuckow; becauſe Jupiter, when he became firſt enamoured with Juno, transformed himſelf into that bird.

Some have repreſented her like a woman of a middle age, holding in one hand a poppy-flower or head; and a yoke, or pair of fetters, lying at her feet.

By the yoke is ſignified the band of matrimony, and by the poppy fruitfulneſs; and hence ſhe is ſuppoſed to be the goddeſs of marriage.

She is alſo depicted with black hair and eyes, adorned with a ſky-coloured mantle, wrought with gold and peacocks eyes, like the orient circles in the peacock's train.

IVORY, is the tuſk of an elephant, which grows on each ſide of his trunk, in form of an horn.

Ivory is much eſteemed for its colour, its poliſh, and the fineneſs of its grain when wrought.

To ſoften IVORY. Boil a good handful of ſage-leaves in thrice diſtilled vinegar, put in a little quick-lime, and boil the Ivory in it, and it will grow ſoft and tough, and will not break without difficulty, when it is worked in the fineſt comb-teeth, or other fine works.

To whiten IVORY *that is turned yellow.* Beat a pound of quick-lime ſmall, and cover the Ivory with it; then gently, and by degrees, pour vinegar upon it, and ſuffer it to lie for the ſpace of 24 hours; then take it out, and rub it with alum powder, and it will reſtore its firſt whiteneſs: In the like manner you may order bones.

JUPITER, is painted with long curled black hair, clad in a purple robe trimmed with gold, and ſitting on a golden throne, with bright yellow clouds diſperſed about him.

Orpheus has deſcribed Jupiter with golden locks, with two golden horns peeping out of his temples, with bright ſhining eyes, with a large and fair breaſt, and wings on his ſhoulders.

Pauſanias ſays, That in the temple of Minerva, among the Argives, the ſtatue of Jupiter was made with three eyes, two of them in their right places, and the other in the middle of the forehead.

Plutarch relates, That, in Crete, he was repreſented wholly in human ſhape and proportion, but without ears.

Porphyrius and Suidas repreſented the image of Jupiter, ſitting upon a firm and immoveable ſeat; his upper parts naked and uncloathed, and his lower parts covered and inveſted; holding in his right hand a great eagle, joined with the figure of Victoria, and in his left hand a ſcepter.

This image was erected in Piræus, a ſtately and magnificent gate of Athens.

Martianus repreſents him with a regal crown, adorned with the moſt precious and glittering ſtones, having over his ſhoulders a thin white veil, made by Pallas's own hands, in which were inſerted divers ſmall pieces of glaſs, repreſenting the moſt reſplendent ſtars: In his right hand he holds two balls; the one all gold, the other half gold, half ſilver; in the other hand an ivory harp with nine ſtrings; ſitting on a foot-cloth, wrought with ſtrange works and peacocks feathers; and near his ſide lies a trident all gold imboſſed maſs.

With the Eleans, a people of Greece, the ſtatue of Jove was compacted of gold and ivory, impaled with a coronet of olive leaves; holding in his right hand the image of Victoria; in his left a ſcepter, on the top of which was the portraiture of an eagle upon a ſeat of gold, inchaſed with the forms of many unknown birds and fiſhes, upheld and ſupported by four images of Victoria.

In Caria, a place of the leſſer Aſia, the ſtatue of Jupiter was made, holding in one of his hands a pole-axe.

Plutarch

Plutarch ſays, the reaſon of this was on account of Hercules, who, overcoming Hippolyta the Amazonian queen, took it from her, and gave it to Omphale, his wife, a Lydian.

JUSTICE, is repreſented, in painting, &c. by a fair young virgin, drawing after her, with her left hand, a black hard ill-favoured woman, haling her by main force, and ſtriking her over the face in a ſevere manner.

The young virgin is Juſtice, the other Injuria, i. e. wrong or injuſtice; ſhe is drawn young and a virgin, to ſhew that judges and adminiſtrators of law ought to be incorrupt, and free from bribes, partiality, or flattery; but juſt, conſtant, and ſincere.

JUSTICE, is alſo repreſented, in painting, &c. by a virgin, cloathed all in white, blinded; in her right hand ſhe holds the Roman faſces, with an axe in it; in her left hand a flame; and an oſtrich by her ſide.—The white ſhews that ſhe ſhould be ſpotleſs, void of paſſion, without reſpect to perſons, as being hoodwinked declares; the faſces denote whipping for ſmall offences, and the axe cutting off the head for heinous ones; the oſtrich ſignifies that things ſhould be ruminated upon, how hard ſoever they be, for that digeſts hard iron.

Divine JUSTICE, is repreſented, in painting, &c. by a handſome woman, with a golden crown on her head, with rays above, her hair looſe about her, a naked ſword in her right hand, in the left the balance, the globe of the world at her feet.—The crown and globe ſhew their power over the world; the balance ſhews Juſtice; the ſword, the puniſhment of malefactors.

K.

K *Hans* KALDUNG uſed this mark; as alſo did Luke van Cranogio.

KALI, a plant, alſo called glaſs-wort; it grows in the ſands on the ſea-ſhore, where it is ſown by the neighbouring inhabitants, in order to burn it green; which done, they extract a ſalt from its aſhes, uſed in making glaſs. See the articles GLASS and POLVERINE.

KAOLIN, the name of one of the two ſubſtances which are the ingredients of China ware; the other, which is called petuntſe, is eaſily vitrifiable, and this Kaolin is ſcarce at all ſo; whence the fire compoſes, from a mixture of them both, a ſemivitrification, which is China ware. Mr. Reaumur had an opportunity of examining this ſubſtance, not in its native ſtate, but only in form of ſmall bricks, made out of a paſte of the powder of the native Kaolin and water; he found it of a white colour, and ſprinkled all over with fine glittering particles; but theſe he did

not judge to be fragments of a different ſubſtance mixed among the maſs, as are the ſmall flakes of talc in our clays and ſands, but that the whole maſs was compoſed of ſome ſtone reduced to powder, and made into a paſte with water; and that theſe larger ſpangles were only coarſer particles of the powder, the examination of which, he promiſed himſelf, would diſcover what the ſtone was of which they were formed; and this was the more worthy of a diligent inquiry, ſince the petuntſe may eaſily be ſupplied by many of our own earths and ſands, nothing being required of that, but a ſubſtance eaſily running into a white glaſs; but the difficulty of vitrifying this other ingredient renders it a thing much more difficult to be ſupplied by one of the ſame nature among ourſelves. The compariſon of theſe with other mineral ſubſtances ſoon proved that they were of the nature of talc, or, in other words, that Kaolin was talc powdered and made up into a paſte with water; and, to be aſſured whether the whole maſs was talc powdered, or any thing elſe, with a mixture of talc, he ſeparated the particles of the Kaolin by water, and found the ſmall ones wholly the ſame as the larger; and that the larger, when reduced to powder alone, made, with water, a paſte wholly the ſame with the Kaolin. It is well known, that the fragments of talc have a great reſemblance to the pearly part of ſome ſhell-fiſhes; and hence, unqueſtionably, has ariſen the opinion of porcelain; but it is eaſy to ſee, from many unanſwerable reaſons, that, ſince China porcelain is made of a mixture of vitrifiable and unvitrifiable matter, nothing is ſo likely to ſucceed with us, in the place of the laſt of theſe, as talc.

We know no ſubſtance in the foſſil world ſo difficult to reduce to glaſs as talc; and, if put into the ſtrongeſt of our fires in a crucible, is not to be vitrified, nor even calcined.

2. We know no ſubſtance which keeps ſo much brightneſs, after having paſſed the fire, as talc, or is of ſo pure a white; whence we may alſo learn, that it is not to the petuntſe alone that the China ware owes its whiteneſs, but that the Kaolin is inſtrumental to the giving it that colour.

3. Talc is tranſparent, nay, and in ſome degree keeps its tranſparency after the action of the moſt violent fire. If we are to make porcelain of a vitrifiable and an unvitrifiable matter mixed together, yet it is neceſſary that the unvitrifiable one ſhould retain its tranſparency, otherwiſe it would obſcure the maſs; and talc is therefore the only known ſubſtance qualified for this purpoſe. Perſons who have been at the China works ſay, that the porcelain is made of equal quantities of Kaolin and petuntſe, and is therefore a juſt and exact ſemivitrification.

4. Talc is well known to have a great flexibility or toughneſs; and, as it is found to preſerve this even after it has paſſed the fire,

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it is very probable, that it is owing to this property of the Kaolin that the China ware is ſo much leſs brittle than glaſs.

KEEPING, in painting, a term uſed to ſignify the ſubordination of all the other parts of a picture to the one principal figure, from whence the examination of the parts muſt be begun, and to which it muſt be returned in the determination of the whole picture.

William de KEISAR, was a very neat landſcape-painter, after the manner of Elſheimer; he was perfectly of the Dutch goût, minding little particulars more than the whole together. He wrought ſometimes with Mr. Loten the landſcape-painter; he imitated various manners, and drew ſome ſorts of cattle and birds very well; he alſo painted tombs and various ſorts of ſtone work in imitation of Vergoſoon. He was not unſkilful in painting, architecture, and flowers; he died in London about 67 years ago.

KERMES, a kind of little animal, found on an evergreen of the oak kind, of conſiderable uſe both in phyſic and dying.

Kermes, as brought to us for uſe, is a ſmall roundiſh body of the bigneſs of a pea, and of a browniſh-red colour, covered, when moſt perfect, with a bluiſh or purpliſh grey duſt, like the fine bloom on a ripe plum, which is eaſily rubbed off by touching: It is, when cut, found to be a mere membraneous bag or caſe, containing a multitude of little diſtinct granules, which are ſoft and juicy, and, when cruſhed between the fingers, afford a ſcarlet juice. The Kermes has an agreeable ſmell, and is of a ſomewhat acid and bitteriſh, but far from diſagreeable taſte.

It is in this ſtate found, adhering to the leaves and young ſhoots of a kind of ilex or holm-oak, in the warmer countries, and always poſſeſſes ſome fixed place, without any appearance of life or motion; this is the ſtate in which we have been uſed to receive this valuable drug, and this is all we have been informed, for a long time, as to its hiſtory; it is therefore no wonder that, till very lately, the world in general has underſtood it to be a vegetable excreſcence, growing on this kind of oak as the common galls do on the common oak: It has been long ſuſpected by ſome to belong ſo far to the animal tribe as to be the effect of ſome wound or puncture, made in the bark and leaves of this tree by an animal; but we are at length arrived at its full hiſtory, which is very ſingular but too long to be here related. We now know it to be the extended body of an animal parent, no way altered but by ſuch extenſion, and filled with a numerous offſpring, which are the little red granules we find in it, and which it has given life to at the expence of its own.

To extract ſcarlet colour from the KERMES, *for making a fine lake.* Take ſpirit of wine, and put it into a long-necked glaſs body; diſſolve in it a pound of roch alum, adding an ounce of

Kermes

Kermes finely powdered and ſearced; let it digeſt well, ſhaking the matraſs from time to time, and the ſpirit will extract all the tincture of the Kermes, and be very finely coloured; then let all ſettle for four days, and afterwards pour it gently into a glazed earthen veſſel.

Diſſolve four ounces of roch alum in running water, and pour this into the tincture of Kermes, to cauſe a ſeparation; filtre it through a linen cloth, and the ſpirit will fall through white, leaving the tincture behind. If it be any thing coloured, ſtrain it again and again, till it is clear; take up the lake or colour with a wooden ſpoon, and make it into troches. See LAKE.

Luke KILIAN put this mark on a nativity copied from Parmegiano.

To dye ſilk a KING's *colour*. Put a ſufficient quantity of water into a clean kettle or copper, and to every pound of ſilk take twelve ounces of madder, and the ſame quantity of galls; boil the ſilk with them for an hour, then take them out, let them be a little browned, and then dried.

Anne KILLIGREW, was a young gentlewoman, daughter of Dr. Killigrew, maſter of the Savoy, one of the prebendaries of Weſtminſter. She painted ſeveral hiſtories, alſo portraits, for her diverſion, exceedingly well, as likewiſe ſome pieces of ſtill life. Mr. Becket did her picture in metzo-tinto after her own painting. She was alſo a poeteſs, and wrote a book of poems which were printed: She lived unmarried, and died young, about the year 1688.

John-Zachary KNELLER, was born at Lubec, and brother to Sir Godfrey Kneller. He travelled to Italy, and when he came to England painted ſeveral portraits in ſmall, very neat; he did alſo ſeveral pieces in ſtill life. At laſt he took to water colours, and copied divers of his brother's portraits in miniature with good ſucceſs. He died in Covent-Garden about 1704, and lies buried in that church.

Sir Godfrey KNELLER, born in the year 1646, lived at London, excelled in portraits; died in the year 1723, aged 77 years.

L.

LACCA, or gum Lac, a vegetable product, uſually diſtinguiſhed by the name of algum; but that is as improper as the elemi, it being, like that, inflammable, and not ſoluble in water. We diſtinguiſh three kinds of Lacca in the ſhops, which are all the produce of the ſame tree, and only differ in form; they are, firſt, the ſtick Lac; ſecondly, the ſeed Lac; and, thirdly, the ſhell Lack: The ſtick is a hard, reſinous, and friable matter, of

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an uneven and granulated ſurface, and of a reddiſh, but ſomewhat duſky colour. It is of an auſtere and ſubaſtringent taſte, and is fixed round certain ſticks, and round branches of a woody ſubſtance.

The ſeed Lac is brought to us in looſe grains, or little maſſes of a roundiſh irregular figure, and of a reddiſh colour. They ſeem no way different from the ſtick Lac.

The third kind, or ſhell Lac, is met with in thin and tranſparent cakes, which are made by melting the former granules of the other matter, taken from the ſticks into a maſs.

We are not at all perfect in the hiſtory of this drug: What has been advanced by authors about it leaving us uncertain whether it properly belongs to the vegetable, or the animal kingdoms.

To clean ſilver or gold LACE. Lay the Lace ſmooth on a fine woollen carpet, and bruſh it free from duſt; then burn roch alum, and powder it very fine, and afterwards ſift it through a lawn ſieve, then rub it over the Lace with a fine bruſh, and in doing it will take off the tarniſh, and reſtore it to its brightneſs, if it be not too much worn on the threads.

LACES, to paint, in miniature, &c. Lay on firſt a mixture of blue, black, and white, as for linens; then heighten the pattern, flowers or flouriſhes, with white only; then ſhade and finiſh with the firſt colour.

When they are upon fleſh, or any thing elſe which you would have to be ſeen through them; finiſh what is under them, as if you intended to lay nothing on them, and lay on the Lace or point with pure white, and finiſh with the other mixture.

To make the common LACKER *varniſh.* Take rectified ſpirits of wine 2 pounds, ſhell-lac in powder half a pound, put them into a two-quart bottle, and let them ſtand till the lac is quite diſſolved; then ſtrain it, and add a little common ſanguis draconis in fine powder, and a little turmeric in fine powder, both tied up in a rag; digeſt them for a day or two, ſhaking it often, and it is done. You may heighten or diminiſh the colour by increaſing or diminiſhing the quantity of the colouring ingredients.

Another LACKER. Take rectified ſpirits of wine 2 pounds, ſhell-lac half a pound: Let it be diſſolved, and then ſtrain it; then, inſtead of common ſanguis draconis, take a very little drop of fine ſanguis draconis in fine powder, and Engliſh ſaffron dried, which tie up in a fine linen rag, and put into the varniſh, as before.

If you would have the colour deeper, or more like copper, add more ſanguis draconis; but, if lighter, the more ſaffron.

To make the beſt ſort of LACKER *varniſh now uſed by gilders.* Take fine ſeed-lac varniſh, which ſee under the article VARNISH,

NISH, 6 ounces, with which mix arnotto in fine powder, a ſufficient quantity; ſet it over the fire in a gally-pot, and let it diſſolve, and keep it in a bottle cloſe ſtopped.

2. Take fine ſeed-lac varniſh 6 ounces, as much gamboge in powder as it will diſſolve in a gentle ſand-heat; keep this alſo in a glaſs cloſe ſtopped for uſe.

3. Take ſeed-lac varniſh one pound, and add to it 2 ſpoonfuls and a half, or 3 ſpoonfuls of the firſt reſerved tincture; and 5 or 6 ſpoonfuls of the ſecond reſerved varniſh tincture; and add to this 15 grains of ſaffron tied up in a rag: Digeſt them for 24 hours, having firſt ſhaken them well.

4. Then make a trial of this varniſh upon a bit of ſilver; if you find it too yellow, put in more of the arnotto, or firſt reſerved varniſh tincture: Thus increaſing or diminiſhing the preparation, till you have brought it to the exact golden colour, which is the ultimate, or only thing aimed at.

To LACKER *oil-painting, ſized works, or burniſhed ſilver.* Warm your picture-frame or piece of work before the fire; then having put out ſome Lacker into a large gally-pot, with a fine large and faſt bruſh of hog's-hair, or camel's-hair, nimbly paſs your work over, and be ſure that you do not miſs any part of it, nor yet waſh the ſame part twice; but take ſpecial care to lay it thin, and even, and preſently warm it by the fire while it looks bright; for by ſo doing you may Lacker it again in a quarter of an hour, warming it before and after the operation.

Repeat it twice or thrice, and, if you find the colour not deep enough, do it again the fourth time; but take care of making it too deep; for it is a fault that cannot be mended.

To make LACKERING *look like burniſhed gold.* If you have before-hand burniſhed your ſilver very well, and your Lacker is tinged of a true gold colour, and you lay it on carefully with an even hand, not thicker in one place than another, matting it as you do burniſhed gold, it will be ſo exactly like gold foil, or gilding, that it will be able to deceive the moſt curious eye, that ſhall not be beforehand acquainted with the fallacy.

Here you are to obſerve, That, in Lackering carved works, you muſt be quick, or ſtrike and job your bruſh againſt the hollow parts of it, to cover them alſo, matting and varniſhing them deeper, and more dull than other parts of the frame or pieces; and this deepening is done with the Lacker varniſh, or with arnotto itſelf, which being well mixed with the ſame, all the deep and hollow places and veins of the work are to be touched and deepened with it; by which means the colour is accompliſhed, and the reflection of a perfect glory.

To LACKER *in oil ſuch things as are expoſed to the weather.* 1. The ſame method is to be obſerved here, as in the former, except-

excepting in this, that your priming ought to be whiter than the laſt, which is effected by mixing a little white lead, which has been ground a long time, with the former gold ſize.

2. Alſo your ſilver ſize ought not to be ſo dry as that of gold, when the leaves are laid on.

To gild carved work in oil, which is not to be expoſed to the open air. Melt ſome ſize, and put in juſt ſo much whiting as will make it of a white colour; do the frame over once with this ſize.

3. Then add more whiting to the ſize, till it is of a proper thickneſs; and do it over three or four times, or more, with this, according as you find the work does require, letting it dry thoroughly between each time.

4. When this is thoroughly dry, rub and ſmooth the work all over with a piece of fiſh-ſkin or *Dutch* ruſhes, and afterwards water-plane it, with a fine rag, dipped in water; rubbing it gently till it is very ſmooth, and then ſet by to dry, and then ſize it with ſtrong ſize.

5. Let it ſtand till it is dry, then Lacker over the work twice by a gentle heat, and lay on your gold ſize, and perform every thing as before directed for laying on leaf gold.

Jean LADESPELDRICKT *invenit*, is the mark of that artiſt on a dead *Chriſt*; and the ſame mark is found on other pieces.

Peter VANLAER, called *Bamboccio*, born in 1584, ſtudied in France and at Rome, lived at Haerlem and Amſterdam, excelled in hiſtory, landſcapes, and grotto's; died in the year 1644, aged 60 years.

LAKE, comes next after crimſon, and is good for ſhading and heightening carmine. But, in laying carmine upon a print, you muſt touch your lights only with a very thin teint of it, that can ſcarcely be diſcerned; and lay it on ſtrong, juſt upon that part of the light which enters upon the ſhade, and afterwards lay ſome Lake on the ſtronger part of the ſhade.

To make a fine LAKE. Take half a pound of good braſil, boil it in three pints of ley, made of the aſhes of vine-ſprigs, till it be half evaporated; then let it ſettle, and ſtrain it off.

Then boil it again with freſh braſil a quarter of a pound, of cochineal two pounds, and terra merita half an ounce; adding to it a pint of fair water; let it boil till it be half evaporated, as before; then ſet it by to ſettle, and ſtrain it. But, when you take it off the fire, put in half an ounce of burnt alum reduced to an impalpable powder; let it diſſolve, ſtirring it with a ſtick, and add to it a quarter of a drachm of arſenic.

In order to give it a body, reduce two cuttle-fiſh bones to a fine powder, and put in the powder, and leave it to dry up at leiſure,

leiſure, and then grind it with a good quantity of fair water, in which leave it to ſteep; and afterwards ſtrain it through a cloth, and make it up into ſmall tablets or cakes, and ſet it to dry on a card or paſte-board.

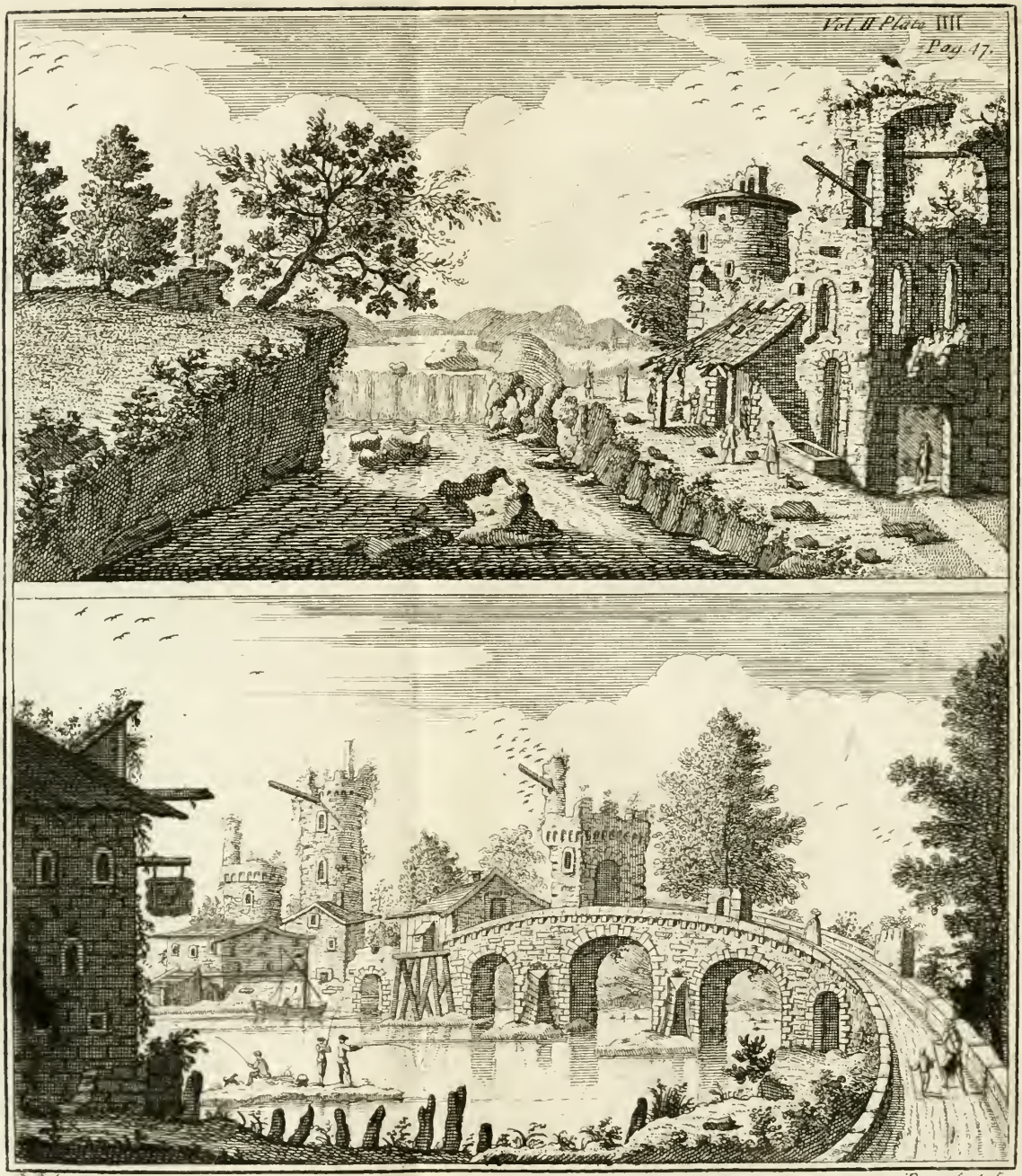
If you would have this Lake redder, add to it lemon-juice; and, if you would have it deeper, add to it oil of tartar.

Another LAKE. Boil ſhavings or ſhearings of ſcarlet cloth in a ley of the aſhes of burnt tartar, or oil of tartar; this ley having the quality of ſeparating the ſcarlet; when it has boiled enough, take it off, and add to it cochineal meſtic in powder, and a little roch alum; then boil them again all together, and, while it is hot, ſtrain it two or three times through a jelly-bag; the firſt time ſqueeſing the bag from top to bottom with two ſticks, then take out what remains behind in the bag, and waſh it well; then paſs the liquor you expreſſed with the ſticks through the bag again, and you will find the Lake ſticking to the ſides of the bag, which you may either ſpread out upon a paſte-board, or divide into ſmall parcels upon paper, and ſet it by to dry.

To make columbine LAKE. Steep half a pound of the fineſt braſil wood of Fernambouc, raſped in three pints of the moſt ſubtilly diſtilled vinegar, for at leaſt a month; and, if it be for ſix weeks, it will be the better. After which, boil all about four minutes in balneo mariæ, and leave it for a day or two; after which, put a quarter part of alum powder into a very clean earthen pan, and ſtrain the liquor upon it through a cloth, and ſo let it remain for a day; then heat the whole till it ſimmers, and, leaving it again for twenty-four hours, reduce two cuttle-fiſh bones into powder, and, having warmed the liquor, pour it in upon them; then keep ſtirring the whole with a ſtick till it is cool, and leave it again for twenty-four hours before you ſtrain it. Remember that it muſt be firſt ſtrained upon the alum, before it is poured upon the cuttle-fiſh bone.

The marc or dregs of columbine LAKE. To make a fine purple colour, beſides the carmine for oil and diſtemper, take the marc or dregs of the columbine Lake, which ſubſides with the cuttle-fiſh bone, and dry it and grind it, and there will be no fine Lake ſo ſplendid; and, if it be mixed with Lake, there will be an addition made to its body.

Major-General LAMBERT, was a great encourager of painting, and a good performer himſelf in flowers, as was, or is yet to be ſeen in the Duke of Leeds's houſe at Wimbleton. It is probable he might have learned this art, or, at leaſt, have been furthered in it by Baptiſt Gaſpars, whom he received into his ſervice at his coming into England in the time of the civil wars. His eldeſt ſon, John Lambert, Eſq; alſo painted faces for his diverſion very well, many of whoſe pictures are ſtill to be ſeen; this



Toms sculp.

this laſt gentleman died about 52 years ago, at his eſtate in Yorkſhire.

Proſper Henricus LANCRINCK, was a German, born in the year 1628, is ſuppoſed to have learned his art at Antwerp, was a landſcape-painter; copied after Titian and Salvator Roſa. He came into England, and Sir Edward Sprag, that noble ſea commander, became his patron; was employed by Sir Peter Lely in painting the grounds, landſcapes, flowers, ornaments, and ſometimes the draperies of thoſe pictures he intended to gain eſteem by. He alſo practiſed drawing by the life, and ſucceeded well in ſmall figures. He died at a middle age in the year 1692.

LANDSCAPE, } The view or proſpect of a country, ex-
LANDSCHAPE, } tended as far as the eye will reach. Land-
LANDSKIP, } ſcapes, in painting, are pieces repreſenting ſome campaign or rural ſubject, as hills, valleys, rivers, country-houſes, &c. where human figures are only introduced as accidents and circumſtances.

Of limning LANDSCAPE, *more particularly to make the tablet for Landſcape.* Take a piece of vellum, and ſhave it thin upon a frame: Faſten it with paſte or glew, paſte it upon a board; theſe ſort of tablets are altogether uſed in Italy for Landſcape and hiſtory.

2. If you take your Landſcape from the life, take your ſtation on a riſing ground on the top of an hill, where you will have a large horizon, and mark your tablet into 3 diviſions downwards from the top to the bottom.

3. Place your face directly oppoſite to the midſt of the finitor, keeping your body fixed, and draw what is directly before your eyes, upon the middle diviſion of the tablet; then turn your head, but not your body, to the right hand, and delineate what you view there, adding this to the former; alſo do the like by what is to be ſeen on your left hand, and your Landſcape will be completed.

4. Lay down every thing exact, not only in reſpect to diſtance, proportion, and colour; but in form too: As, if there be hills, dales, rocks, mountains, ruins, cataracts, aqueducts, cities, towns, caſtles, fortifications, or whatever elſe may preſent itſelf to view, always making a fair ſky to be ſeen afar off, and letting the light always deſcend from the left to the right.

5. When you firſt begin your work, begin with a large ſky; and, if there be any reflection or ſhining of the ſun, be ſure that you do not mix any red-lead in the purple of the ſky or the clouds, but only with lake and white; work the yellow and whitiſh beams of the ſun with maſticote and white.

6. Then finiſh the bluiſh ſky and clouds with a clean pencil, and ſmalt only at the firſt operation; dead all the work over with

with colours ſuitable to the air, green meadows, trees, and ground; laying them ſomewhat ſmooth, but not over curiouſly, but ſlightly and haſtily.

7. Make a fair, large ſky, and work it down to the horizon faintly, but very fair; and, drawing nearer to the earth, let the far diſtant mountains appear ſweet and miſty, almoſt undiſtinguiſhable, joining with the clouds, and, as it were, loſt in the air.

8. The next ground colour, downwards, muſt increaſe in magnitude of reaſon as nearer the eyes, ſomewhat bluiſh, or of a ſea-green: But, drawing towards the firſt ground, let them decline into a reddiſh or popinjay-green.

9. The laſt ground colour muſt be neareſt to the colour of the earth, viz. a dark yellow, brown, and green, with which, or ſome other colour near it, you muſt make your firſt trees.

10. Making them to increaſe proportionably in colour and magnitude, as they come near in diſtance, and that with good judgment; the leaves flowing, and falling in one with another; ſome apparent, and others loſt in the ſhadow.

11. Let the Landſcape lie low, and, as it were, under the eye, which is the moſt graceful and natural, with a large and full ſky, not riſing high, and lifting itſelf up into the top of the piece.

12. Take care to make your ſhadows to fall all one way, viz. to make light againſt darkneſs, and darkneſs againſt light; by that means extending the proſpect, and making it ſeem as though it were a great way off, by loſing its force and vigour, by its remoteneſs from the eye.

13. In touching the trees, boughs, and branches, put all the dark ſhadows firſt, raiſing the lighter leaves above the darker, by adding maſticote to the dark green, which may be made with bice, pink, and indigo.

14. The uppermoſt of all, which are expreſſed laſt of all, by lightly touching the outmoſt edges of ſome of the former leaves, with a little green, maſticote, and white; the darkeſt ſhadows may be ſet off with ſap green and indigo.

15. You muſt endeavour to expreſs trees and their leaves, rivers and mountains, far diſtant, with a certain real ſoftneſs and delicateneſs.

16. To repreſent cataracts, great water-falls, and rocks, there muſt firſt a full ground be laid near the colour, and then a ſtronger in dark places, and a ſlight heightening in the light.

17. Take notice of all diſproportions, cracks, ruptures, and various repreſentations of infinitely differing matters; the manner of which is abundantly expreſſed in almoſt every Landſcape. See two Landſcapes on plate IV.

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Laughter

Laughter

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Meekneſs.

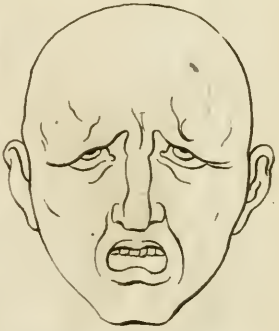
Love.

Love.

Rapture.

Rapture.

Extream bodily pain.



Cavalier Gio LANFRANCO, born in the year 1581, ſcholar to the Carraches, and a zealous imitator of Raphael Correggio, lived at Rome, Parma, and Naples; excelled in hiſtory, and died in the year 1647, aged 66 years.

Mr. LANIER, was a painter well ſkilled in the Italian hands. He was employed by King Charles I. beyond ſea, to purchaſe that collection made by him, to whom he was cloſet-keeper.

LAPIS LAZULI, a mineral ſtone of a blue colour, from whence ultramarine is extracted. See ULTRAMARINE.

LARK-SPUR, *or Heel*, is of ſeveral colours, and ſtriped; the moſt common are purple, gridelin, and red, which you may know how to do by the directions for other flowers of the ſame colour.

LATTEN, plates of iron covered with tin.

LAUGHTER, in painting, &c. In this paſſion all the parts of the face go one way; for the eye-brows, being drawn down towards the middle of the forehead, cauſe the mouth, noſe, and eyes to follow them in the ſame motion. See plate V.

This paſſion of Laughter ſucceeds joy, and the motions of it are expreſſed by the eye-brows raiſed about the middle, and drawn down next the noſe; the eyes almoſt ſhut; the mouth appears open, and ſhews the teeth; the corners of the mouth being drawn back, and raiſed up, will make a wrinkle in the cheeks, which will appear puffed up, and almoſt hiding the eyes; the face will be red, the noſtrils open, and the eyes may ſeem wet, or drop with tears, which, being very different from thoſe of ſorrow, make no alteration in the face; but very much when excited by grief.

Marcellus LAURON, or LAROON, was born at the Hague in 1653, and brought up under his father, who brought him very young into England. He was a general painter, and imitated other maſters hands very well. He painted well both in great and little, and was an exact draughtſman, but was chiefly famous for drapery, wherein he excelled moſt of his contemporaries. He was likewiſe famous for pictures in little, commonly called converſation pieces. He died, and was buried at Richmond in Surry, aged 52 years.

LAW, is repreſented in painting, &c. cloathed in purple robes, ſeeded with golden ſtars, and a mantle of carnation, fringed with gold, purple, and yellow buſkins.

L. C. Ciu. F. with the firſt C in the perpendicular ſtroke of the L, is the mark of Ludovico Cardi, ſirnamed Civoli, a Florentine painter, in a plate of the ſupper of the Phariſee.

L. C. F. B. } ſignifies Lewis Caracci inventor. Fran-
LOD. C. I. Fr. Bri. } ceſco Briccio intaglio, or engraved.

L. C. } ſignifies Luke Van Cranogio, or Luke Van Craen,
L.V.C. } painter, in Savoy, anno 1509.
L. C. } ſignifies Lewis Caracci, in his three plates, engra-
L.O.C. } ved with his own hands.
L.D. in a ſacrifice, and Alexander the Great, by Abbot Primaticcio.

LEAD, is a coarſe, heavy, impure metal, of all others the ſofteſt and moſt fuſible, when it has been purified.

By making an analyſis of it, it is found to contain a little mercury, ſome ſulphur, and a great deal of bituminous earth.

Lead is found in various countries, but abounds particularly in England.

It is melted on a furnace, provided for that purpoſe, with a ſtrong coal fire upon it; as it melts, it runs through a canal on one ſide of it, leaving the earth, ſtone, and ſcoria, with the aſhes of the coals.

It is purified by ſkimming it before it is cold, and by throwing ſuet, and other fat bodies, into it.

When the Lead ore is dug out of the mine, it is beaten ſmall, and waſhed clean in a running ſtream, and ſifted in iron rudders.

The hearth or furnace, whereon it is melted, is made of clay, or fire-ſtone; this is ſet into the ground, and the fire is built on it, and is lighted with charcoal, continued with oaken gads, blown with bellows by mens treading on them.

After the fire being kindled, and the fire-hearth is grown hot, the Lead ore is thrown on the wood, which melts down into the furnace, and then with an iron ladle they take it out, and upon ſand caſt it into what form they pleaſe.

The ore runs ſometimes in a vein, ſometimes diſperſed in banks; it lies many times between rocks; ſome of it is harder, others ſofter; ſometimes they have branched ore in the ſpar; about the ore is ſpar and chalk, and another ſubſtance, which the miners call crootes.

It has been obſerved by Mr. Glanvil, that the ſmoke of the Lead works, in Somerſetſhire is a great annoyance, and affects both the workmen, and the cattle that graze near them with a diſeaſe, that often proves mortal.

That the trees that grow near them have their tops burnt, and their leaves and outſides diſcoloured and ſcorched.

There are various preparations of Lead, ſerving for various uſes; as,

Lead-duſt is a preparation uſed by potters, made by throwing charcoal duſt on melted Lead, and ſtirring them a long time together; to ſeparate the coal again, they only waſh it in water, and dry it afreſh; the uſe of it is to give a varniſh and gloſs to their works.

White

White Lead uſed by painters is only thin plates of Lead, diſſolved by the fumes of boiling vinegar.

Maſticotes of ſeveral colours, and the ſandix, are alſo preparations of Lead.

Red LEAD is a preparation of mineral Lead calcined, uſed by painters, potters, &c.

Litharge of gold or ſilver is only the Lead that has been uſed in purifying copper.

Black LEAD is a kind of mineral ſtone, of a black colour, but ſilvered and ſhining, found in Lead mines, and appears to be nothing elſe but Lead, not yet arrived at maturity, much uſed as crayons or pencils for deſigning.

This is melted like the common Lead.

To purge LEAD. Melt it in the fire, then quench it in the ſharpeſt vinegar; melt it again, and quench it in the juice of celandine; melt it again, and quench it in ſalt water; then in vinegar mixed with ſal armoniac; and, laſtly, melt it, and put it into aſhes, and it will be well cleanſed.

To make LEAD *of a golden colour.* Put an ounce of quick-ſilver into a crucible, ſet it over the fire till it is hot, then add to it of the beſt leaf gold one ounce, and take it from the fire, and mingle it with purified Lead melted one pound; mingle all well together with an iron rod, to which put of the filtrated ſolution of vitriol in fair water one ounce, then let it cool, and it will be of a gold colour; diſſolve the vitriol in its equal weight of water.

How to print the LEAF *of any tree or plant.* Rub the veins on the back ſide of the leaf of any plant you deſire, with a dog's tooth, or piece of ivory, to bruiſe them a little; then rub it over gently with a piece of woollen, dipped ſlightly in linſeed oil; then lay the oiled ſide of the Leaf on a piece of white paper, and preſs it equally on every part, and a perfect impreſſion of it will remain on the paper; which, if you pleaſe, you may afterwards colour of its natural colour.

Another way of taking a natural impreſſion of the LEAVES *of plants, ſo that it ſhall appear as black as if done in a printing-preſs.*

Take any leaf, let it be thoroughly dry, and with a printer's ball, ſuch as they uſe for laying on the ink upon letters, it being equally covered with printers's ink; and ſtrike it gently four or five times over the back of the Leaf, till all the veins have been blacked with the ink; then lay your Leaf on a trencher or ſmall board with the backſide upwards; then lay over the Leaf a piece of white paper, wetted a little, ſo as to be but a ſmall matter more than moiſt; and upon this paper lay a ſmooth trencher, and preſs it hard down, but not ſo hard as to break the fine fibres of the Leaf; and this will give you a fine impreſſion.

But this would be done the more eaſily, if you had a wooden

roller made like a cylinder, of about a foot in length, and an inch and an half diameter, the middle part of which is covered to the length of ſeven or eight inches with woollen cloth, rolled hard and even two or three times about it.

The white paper that covers the Leaf, being rolled four or five times backwards and forwards with this roller, will give you a very curious impreſſion.

But if you cannot conveniently procure printer's ink, which is not eaſily to be had in the country, then you may uſe the following method:

Rub the back of the Leaf with linſeed oil burnt, and then ſtrew ſome powder of black lead, or, if you have not that, charcoal or ſmall-coal duſt, very finely ground and ſearced, or the powder of burnt cork, very equally, upon a ſmooth board, that will juſt cover it; then ſtroke it over ſmoothly with the blade of a knife, and clap it upon the board, the back of the Leaf having been oiled; and then lay your white paper on the blacked ſide of the Leaf, and either preſs it, or roll it as before.

But, if you have not the conveniency of any of theſe ingredients, you may uſe vermilion, and, mixing this to the conſiſtence of printer's ink, cover your printing-balls with that, and dab them on the back of the Leaf, and ſo take off your impreſſion as before directed.

A method of taking off the impreſſion of the LEAVES *of plants in plaiſter of* Paris, *ſo that they may be afterwards caſt in any metal.* Thoſe perſons who practiſe caſting in metal have frequent occaſion to uſe the Leaves of plants for the embelliſhment of their works, which are generally made models done by the hand; which require much time, and, after all, are ſometimes very deficient as to perfection; but the following is much eaſier.

Lay the Leaf you would have the impreſſion of between the Leaves of a book, till it will lie flat; then fix the fore-ſide or front of the Leaf to a ſmooth board with ſtrong gum arabic water; after this has been done, raiſe a little wall of coarſe paſte about it, to the height of about half an inch; or you may ſurround your board with paſte-board, or card-paper, ſo cloſe, that it will contain a liquid for ſome time. Then oil the back of the Leaf, and pour on water, and plaiſter of Paris, which, when dry, will have taken an exact impreſſion of every vein of the Leaf, and from which you may eaſily make a mould to caſt in, as you pleaſe.

To preſerve the LEAVES *of tulips.* Make up ſome card-paper into the form of dripping-pans, and fix the tulip Leaves to the cards with ſtrong gum arabic water; then pour on gently ſome of the iſing-glaſs, prepared in ſpirits, warm, till the Leaf is quite covered; and in the ſpace of an hour or two the liquor will become

come hard, and all the colours will be preſerved in beauty for ſeveral years, if the flower be preſerved from the air, by a glaſs, &c.—You may do the ſame by the Leaves of auricula's.

LEAGUE, is repreſented, in painting, &c. by two women with helmets embracing one another, holding ſpears in their hands, on which are a heron and a crow.

Their being armed and embracing denote their conduct to help one another with their arms; the birds, enemies to the fox, at their feet, which they unanimouſly aſſault, as being enemies to them both.

LEARNING, is repreſented, in painting, &c. by a mature lady ſitting with her arms open, as if ſhe would embrace another, having a ſceptre in one hand, on which is a ſun, a book open in her lap, and from a ſerene ſky falls abundance of dew.

Her age ſhews, that Learning is not acquired but by long ſtudy. The open book and extended arms, that Learning is very communicative; the ſceptre and ſun, the dominion it has over the darkneſs of ignorance; the dew, that Learning makes tender youth fruitful.

LEATHER, a matter too well known to need any deſcription.

To colour white LEATHER *the beſt way.* Hang the ſkins in chalk or lime water, till they are grown ſupple, that the hair or wool may be ſtripped off; ſtretch them on tenters, or by the means of lines, and ſmooth them over; then bruſh them over with alum water very warm, and colour them with the colour you would have them, and dry them in the ſun, or in ſome warm houſe; and they will be uſeful on ſundry occaſions, without any farther trouble.

To colour LEATHER *black the* German *way.* Take of the bark of elder two pounds, of the filings or ruſt of iron the ſame quantity; put them into two gallons of rain water, and ſtop them up cloſe in a caſk or veſſel, and let them ſtand for the ſpace of two months; then put to the liquid part a pound of nut-galls beaten to powder, and a quarter of a pound of copperas, heating them over the fire, and ſuffering them to ſtand twenty-four hours after, and then uſe the liquor with a bruſh till the ſkin has taken a fine black.

To colour LEATHER *a fair red.* Firſt rub the Leather well in alum water or alum it; boil ſtale urine, ſcum it, till half of it is waſted; then put in an ounce of the fineſt lake, the like quantity of braſil in powder, one ounce of alum, and half an ounce of ſal armoniac; mix them well, and keep them ſtirring over a gentle fire about two hours, and ſo uſe the liquid part to colour or tinge the ſkin.

To colour LEATHER *of a curious* French *yellow.* Take one

part of chalk, and another of wood-aſhes, and make of them a good ley; then ſtrain out the fine liquor, and ſet it in a veſſel over the fire, and put into it turmeric in powder, and a little ſaffron; and let it ſimmer till it becomes pretty thick; then ſet it a cooling, to be uſed as occaſion requires.

To make white LEATHER *blue.* Take a quart of elder-berries, ſtrain out the juice, and boil it with an ounce of powder of alum, and half an ounce of indigo, or ſmalt-blue; and bruſh over the Leather with a fine bruſh dipped in it three times, ſuffering it to dry between whiles, and the buſineſs will be effected.

Dying LEATHER.

To dye LEATHER *of a reddiſh colour.* Firſt waſh the ſkins in water, wring them well out, and afterwards wet them with a ſolution of tartar and bay-ſalt in fair water, and wring them out again; then to the former diſſolution add aſhes of crab-ſhells, and rub the ſkins very well with this; after this, waſh them in common water, and wring them out; then waſh them with tincture of madder in the ſolution of tartar and alum and the crab-ſhell aſhes; and, if they prove not red enough after all, waſh them with the tincture of braſil.

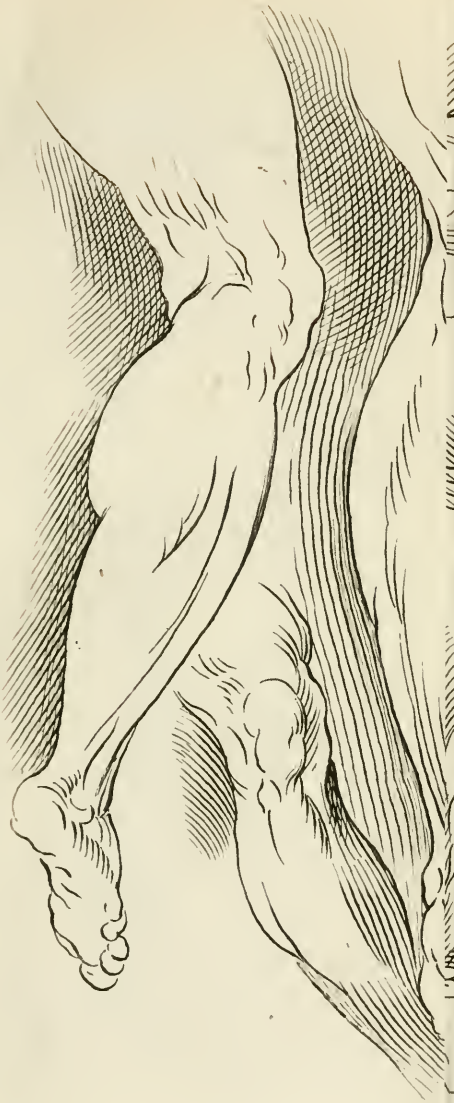
To dye LEATHER *of a pure yellow.* Take of fine aloes two ounces, of linſeed oil four pounds; diſſolve or melt them, then ſtrain the liquor, and beſmear the ſkins with it, and, being dry, varniſh them over. Or infuſe woad in vinegar, in which boil a little alum; or thus, having dyed them green, as directed, then dye them in a decoction of privet-berries, ſaffron, and alum water.

To dye LEATHER *blue.* Boil elder-berries or dwarf-elder in water, then ſmear or waſh the ſkins with it; wring them out; then boil the berries as before in a diſſolution of alum water, and wet the ſkins in the ſame water once or twice, dry them, and they will be very blue. Or take the beſt indigo, and ſteep it in urine a day; then boil it with alum, and it will be good. Or temper the indigo with red wine, and waſh the ſkins with it.

To dye LEATHER *of a pure ſky colour.* For each ſkin take indigo one ounce, put it into boiling water, let it ſtand one night, then warm it a little, and with a bruſh pencil beſmear the ſkin twice over.

To dye LEATHER *purple.* Diſſolve roch alum in warm water, wet the ſkins with it, dry them; then boil raſped braſil well in water; let it ſtand to cool; do this three times, and afterwards rub the dye over the ſkins with your hand, and when they are dry poliſh them.

To dye LEATHER *green.* Take ſap green and alum water, of each a ſufficient quantity; mix and boil them a little; if you would have the colour darker, add a little indigo.



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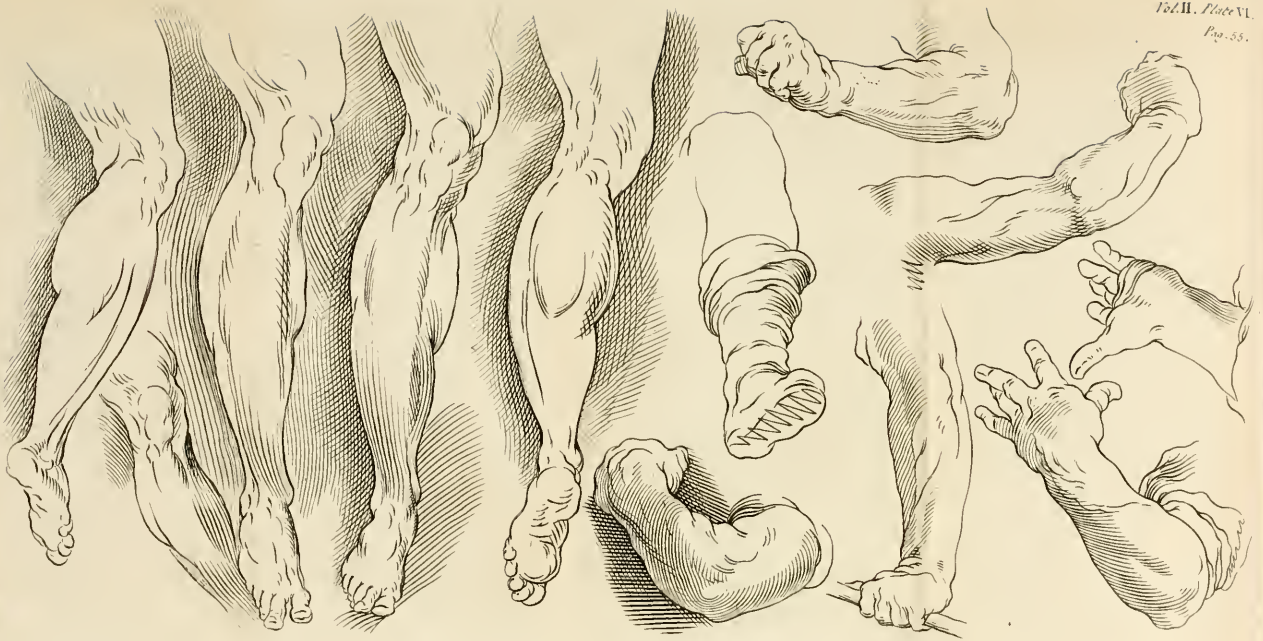


To gild LEATHER. Take glair of the whites of eggs, or gum water, and with a brush rub over the Leather with either of them, and then lay on the gold or silver; let them be dry, and burnish them.

To dress or cover LEATHER *with silver or gold.* Take that which is called brown red, and grind it on a stone with a muller, adding water and chalk; and, when the latter is dissolved, rub, or lightly dawb the skins over with it, till they look a little whitish; and then lay on the leaf silver or gold, before they are quite dry; laying the leaves a little over each other, that there may not be the least part omitted; and when they have well closed with the Leather, and are sufficiently dried on and hardened, rub them over with a polisher made of smooth ivory, or of the fore-tooth of a horse, and it will appear very bright.

LEG, a part of the body too well known to need description. For the manner of drawing Legs, feet, &c. See Plate VI.

Sir Peter LELY, was born in Westphalia in Germany in the year 1617, scholar of De Grebber of Haerlem, and came into England in the year 1641. He at first painted landscape with small figures; but at length betook himself to face-painting, in which he exceeded all his contemporaries in Europe. He acquired a wonderful style in painting, both as to his correct draught and beautiful colouring; but more especially in the graceful airs of his heads, and the pleasing varieties of his postures, together with the genteel and loose management of his draperies, he excelled most of his predecessors.

And, notwithstanding the critics say he preferred almost in all his faces a languishing air, long eye, and a drowsy sweetness, peculiar to himself, for which they reckon him a manneriſt, and that he retained a little of the greenish cast in his complexion; whatever of this kind may be objected against this great painter, his works are highly esteemed both here and abroad, and equally valued and envied.

He was likewise a good history-painter; his crayon draughts are also admirable, and those are reckoned the most valuable of his pieces, which were all done intirely by his own hand.

The earl of Pembroke recommended him to king Charles II, who made him his principal painter, and knighted him.

He died of an apoplexy in London in the year 1680, and 63d of his age. There is a marble monument, with his bust, raised for him in Covent-garden church.

Balthazar Van LEMENS, a history-painter, born at Antwerp. His manner was very free, and often very graceful. His drawings and sketches are excellent. He died in London in the year 1704.

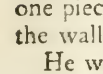
Remigius Van LEMPUT, *alias* REMEE, was a famous co-

pier, in the reign of king Charles II, of the neat maſters, as Stone was of the great Italians. He was a native of Antwerp, and a great copier of Van Dyke, by whom he was much encouraged.

His pieces ſometimes, through the advantage of time upon them, paſs for that great maſter's, now age has a little imbrowned the tint, ſoftened the colouring, and perhaps concealed ſome part of the ſtiffneſs whereof he ſtands accuſed by the critics.

He had 150 l. for copying Henry VII. and Henry VIII. in one piece, after Holbein; being the famous picture that was on the wall at Whitehall, which was afterwards burnt.

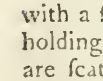
He was very famous for the beſt collection of drawings and prints of any of his time. It was he that bought the celebrated piece of king Charles I. on horſeback, by Van Dyke, now at Hampton-Court, for a ſmall matter, in the time of the troubles, which carrying over to Antwerp, he was there offered 1000 guineas for it, and ſtood for 1500; but, thinking that not enough, he brought it over to England again; where, the times being turned, and he ſtill inſiſting on the ſame ſum, the picture was taken from him by a due courſe of law, after it had coſt him a great deal of money to defend it. He died in London about ſixty years of age.

 *Lucas Van* LEYDEN, a celebrated painter and engraver, uſed thoſe two marks in ſome of his plates.

L. H. ſtands for Lambert Hopfer.

LIBERALITY, is repreſented, in painting, &c. by a woman with a ſquare forehead, in a white veil, an eagle over her head, holding a cornucopia turned upſide down in one hand, whence are ſcattered jewels and other precious things, and in the other hand fruits and flowers.

The eyes and front reſemble the lion, the moſt liberal of all irrational creatures. The eagle denotes the habit of Liberality, for ſhe always leaves ſome of her prey to other birds. The cornucopia ſhews that a generous ſpirit ſhould do good, but not out of vain-glory. The white veil, that ſhe has no ſiniſter deſign nor project of intereſt.

 *Hans* LIENFRINCH thus marked certain plates, repreſenting birds and hunting-pieces with ornaments.

Long LIFE, is repreſented, in painting, &c. by an ancient lady in an antique habit, laying her right hand upon the head of a ſtag with large horns, and many branches; holding a crow in her left hand.—The ancient dreſs denotes the revolution of many years; the old ſtag alluding to that which was found three hundred years after Julius Cæſar, with a gold collar inſcribed HOC CÆSAR DONAVIT. The crow outlives the ſtag, as it is ſaid.

Short LIFE, is repreſented, in painting, &c. by a lady of juvenile

juvenile aſpect, with a garland of various flowers, on her breaſt the figure of hemerobion, a little inſect; in her right hand a roſe-branch, round which is written, Una dies aperit, conficit una dies, i. e. it is diſcloſed, or buds and dies in one day; and in her left the fiſh ſeche. The garland ſhews the frailty of man that loſes his ſtrength, as flowers fade, in a moment; the inſect the ſhortneſs of life, which is but the ſpace of one ſingle day; the ſeche is a fiſh that lives not long.

Of the imitation of LIFE.

1. Firſt chuſe a good maſter, with whom you may ſpend at leaſt two days in a week; it might be better, if there were a ſociety of about ten or twelve young men, who might be of uſe in aſſiſting one the other.

2. Then chuſe a well ſhaped man, one with large ſhoulders, a fair breaſt, having ſtrong muſcles, full thighs, long legs, and of a proportional height, neither too tall nor too ſhort, neither too thick nor too ſlender, but one of a very regular and exact proportion and ſhape.

3. Let this exemplar ſtand in a good poſture, repreſenting ſome noble action of life, letting the head turn itſelf to the right ſide, if the left be ſhadowed; and on the contrary making the parts of the apparent ſhoulder ſomething higher than that which is obſcured; and the head, if it looks upwards, leaning no farther backwards than ſo that the eyes may be ſeen; and, in the turning of it, let it move no farther than ſo that the chin may only approach the ſhoulder; making alſo the hip on that ſide on which the ſhoulder is loweſt a little to ſtick out, and that arm foremoſt where the leg is behind.

4. The ſame things are to be obſerved in relation to all four-footed beaſts; and this generally to make the limbs croſs-wiſe to cohere together, and in the turning of it forward, backward, upward, downward, ſideways, always to counterbalance it by the oppoſition of the other parts, the right knowledge of which is a conſiderable advance towards the imitation of the life.

5. Theſe things being ſo prepared, let the perſon, who is to begin, firſt ſketch on the paper his own ideas, being fixed in a convenient place and light, wherein he muſt endeavour to make every part agree with the whole; firſt in form; ſecondly in proportion; thirdly in action. After this beginning again, run over the draught, and bring it to a concluſion, as ſhall be ſhewn hereafter.

6. Obſerving always, that, after you have ſketched your whole figure, that you chuſe a part, which you have moſt mind to finiſh, to perfect it, in regard that with the reſt ſtands in a good poſture. The reaſon for this is, becauſe time will not always eaſily permit to compleat or finiſh a whole figure, unleſs to ſuch

as

as are expert artiſts; it being much better to bring one part to perfection, than to leave the whole imperfect.

7. It is alſo to be conſidered, after what manner you would have your figure to be ſeen, whether upon even ground, or from above; for the poſition of the exemplar muſt be accordingly.

8. A young artiſt may alſo at his conveniency ſometimes view the country, and practiſe drawing of landſcapes, repreſenting the objects of nature as much as is poſſible; firſt in their diſtance ſecondly in their mutual poſition; and thirdly in viſible aſpect. By this means he will obtain a general and complete underſtanding in the univerſal meaſures of all things.

9. A graceful poſture is a principal thing to be obſerved in every picture; all things are to be expreſſed with proper actions; to wit, in their true and natural motions, according to the life and ſpirit of them.

Majeſty is to be expreſſed in a king, by delineating him in ſuch a graceful poſture, as may cauſe the ſpectators to behold him with reverence.

A ſoldier ſhould be expreſſed in ſuch a poſture, as indicates the greateſt boldneſs and courage.

A clown ſhould be drawn in a ſordid and clowniſh poſture.

A ſervant or page ſhould be expreſſed in a waiting and diligent poſture.

In all manner of draughts after the life, the inward affections of the mind ſhould be livelily expreſſed by the outward actions, motions, and geſtures of the body.

10. But, in order to attain an exquiſite knowledge of theſe things, it will be neceſſary to obſerve the works of the moſt famous maſters, and to ſtrive to imitate the examples of thoſe, who for a long time had accuſtomed themſelves to draw all varieties of geſtures and poſtures; as the actions of combatants fighting at cuffs, wreſtlers, ſtage-players, fencers, the enticing allurement of courtezans, riding the great horſe, tournaments, &c. wherein the motion of the eyes and the hands, and the carriage of the whole body, are exactly to be taken notice of, if you would in drawing expreſs any thing to the life.

11. And, in order that it may appear the more natural and not forced, you muſt uſe a kind of careleſſneſs and looſeneſs in your draught, that the body may not be made ſtiff in any part; but that every joint may have its proper bendings, that the intention of the figure may not be lame, and the joints as it were ſtiffened, that every limb may have its proper freeneſs and looſeneſs, agreeable to the natural life of the picture.

12. In order to be able to make every thing thus naturally accord, the life muſt be diligently obſerved. No action muſt be forced beyond nature; if a perſon be repreſented turning his head

head over his ſhoulder, you muſt not turn it more than nature will admit. Nor ſhould it come ſhort of what bounds nature has allowed it, but rather be quickened to the higheſt pitch.

As if you were to draw a man fighting, either in endeavouring to ſtrike, or avoid the ſtroke of his enemy, in running, wreſtling, leaping, &c. you muſt be ſure not ſo much to overdo nature, as to expreſs a poſture which cannot be imitated with his natural body.

LIGHTS, in painting, &c. are thoſe parts of a piece which are illumined, or which lie open to the luminary by which the piece is ſuppoſed to be enlightened; and which, for this reaſon, are painted with bright vivid colours; and in this ſenſe Lights are oppoſed to ſhadows.

Light is alſo uſed for the luminous body that emits it; there are various kinds of Lights; general Lights, as the air; particular Lights, as a candle, the ſun, a fire.

Different Lights have different effects on a piece of painting, and occaſion a difference in the management of every part.

Therefore much depends upon the painter's chuſing a proper Light for his piece to be illumined by, and a great deal more in the conduct of the Lights and ſhadows, after he has pitched upon the luminary.

The ſtrength and relievo of a figure, as well as its gracefulneſs, depends intirely on the management of the Lights, and the joining of theſe to the ſhadows.

The Light that figures in a piece of painting receive, are either direct or inflected; to each of which ſpecial regard muſt be had.

The doctrine of Lights and colours makes that part of painting, called the clair obſcure.

Of LIGHT, *ſhadow, and colour.* The drawer, engraver, and painter, ought all to purſue one and the ſame intention, and to be under one and the ſame conduct.

What the drawer or engraver makes round with the crayon, or ſteel inſtrument, the painter performs with his pencil, caſting behind what is to be made leſs viſible by diminution, and breaking of his colours; and drawing forwards by the moſt lively colours and ſtrongeſt ſhadows that which is directly oppoſite to the ſight, as being neareſt and moſt to be diſtinguiſhed.

2. If ſolid and dark bodies are placed on Light and tranſparent grounds, as ſky, clouds, waters, &c. thoſe dark bodies, &c. ought to be more rough, and more to be diſtinguiſhed than thoſe with which they are encompaſſed; that being ſtrengthened by the Lights and ſhadows, or colours, they may ſubſiſt and preſerve their ſolidity upon thoſe tranſparent grounds.

3. In the mean ſeaſon thoſe Light grounds, as ſky, clouds, waters,

waters, being clearer and more united, are to be caſt off from the ſight to a farther diſtance.

4. Two equal Lights muſt never be made in one and the ſame picture, but a bigger and a leſſer; the bigger to ſtrike forcibly on the middle, extending its greateſt clearneſs on thoſe places of the deſign, where the principal figures of it are, and where the ſtrength of the action ſeems to be; diminiſhing it gradually, as it comes nearer and nearer to the borders.

5. This is evident in ſtatues, ſet up on high in public places, their upper parts being more enlightened than the lower, which ought to be imitated in the diſtribution of Light.

6. You muſt avoid ſtrong ſhadows on the middle of the limbs, leſt the abundance of black, which compoſes thoſe ſhadows, ſhould ſeem to enter into them, and ſeem to cut them; rather let thoſe ſhadowings be placed round about them, thereby to heighten the parts; making great Lights to ſucceed great ſhadows.

7. On this account Titian ſaid, he knew no better rule for diſtribution of Lights and ſhadows, than his obſervations drawn from a bunch of grapes.

8. Pure white either draws an object nearer, or ſets it off to a farther diſtance; it draws it nearer with black, and throws it backwards without it; but pure black, above all other colours, brings the object nearer to the ſight.

9. The Light, being altered by ſome colour, never fails to communicate ſomething of that colour to the bodies on which it ſtrikes; and the medium of air, through which it paſſes, has the ſame effect,

10. Bodies which are cloſe together receive from each other by reflection that colour, which is oppoſite to them, viz. they reflect on each other their own proper colour.

11. If a deſign is filled with many figures, you muſt always endeavour an union of colours, for fear that, being too different, they ſhould embarraſs the ſight by their confuſion with the great numbers of their members, ſeparated by certain folds.

12. And for this reaſon the Venetians paint their draperies with colours that are nearly related to each, and ſcarcely diſtinguiſh them any other way, but by the diminution of Lights and ſhadows.

13. Thoſe parts of a picture, which are placed foremoſt or neareſt to the view, ſhould always be more finiſhed than thoſe which are caſt behind; and ought to be more manifeſt than thoſe things that are tranſient and confuſed.

14. Things ſituated at a diſtance, though they be many, yet ought to be made but one maſs. As the leaves on the trees, a flight of birds, billows in the ſea, &c.

15. Let

15. Let thoſe objects, which ought to be ſeparated, be manifeſtly ſo, and that by a ſmall and pleaſing difference; but, on the contrary, let not thoſe things be ſeparated that ſhould be contiguous; and, where there are two contrary extremities, let them never touch each other either in colour or Light.

16. Various bodies are every-where to be of different airs and colours; that thoſe which are placed behind may be united together, and thoſe which are placed foremoſt may be ſtrong and lively.

17. In painting either a half figure or a whole one, which is to be placed before other figures, it ought to be placed nearer the eye, and next to the Light: And if it is to be painted in a large place, and at a diſtance from the eye, then you ought not to be ſparing of great Lights, the ſtrongeſt ſhadows, and the moſt lively colours.

18. But a meridian Light muſt not be put in a picture, becauſe there are no colours that can ſufficiently expreſs it; but rather a weaker Light; as that of the morning or evening, whoſe whiteneſs is allayed, and the fields are, as it were, gilded by the ſun-beams; or ſuch as appears after a ſhower of rain, which the ſun gives through the breaking of a cloud.

19. Thoſe parts which are neareſt to us, and moſt raiſed, muſt be coloured ſtrongly, as it were ſparkling: But thoſe parts, on the contrary, more remote from the ſight towards the borders, muſt be touched more faintly.

20. The field or ground ought to be a free tranſient light, and well united with colours, which have a friendly agreement with each other; and of ſuch a mixture, that there may be ſomething in it of every colour of which the work is compoſed, and let the bodies mutually partake of the colour of their ground.

21. The whole picture ought to be made of one piece; in doing which, you muſt avoid, as much as poſſibly you can, to paint drily.

22. Let your colours be lively; but not look as if they had been rubbed or ſprinkled with meal, viz. you muſt take care not to let them look pale.

23. When a picture is drawn by the life, nature muſt be exactly followed, working at the ſame time on thoſe parts which reſemble one another, e. gr. the eyes, the cheeks, the noſtrils, and lips, ſo that you ſhould touch the one as ſoon as you have given a ſtroke of the pencil to the other; leſt, by interruption or diſtance of time, you ſhould loſe the idea of thoſe parts which nature has made to reſemble each other.

24. Thus you will, by imitating nature, feature by feature, with juſt and harmonious Lights and ſhadows, and proper colours,

lours, give to your picture that livelineſs, that it will ſeem, as if it were performed by the living hand of nature.

25. Smooth bodies, ſuch as cryſtal, glaſs, gems, poliſhed metals, ſtones, bones, woods, japans, things covered with hair, as ſkins, the beard, head; alſo feathers, ſilks, and eyes, which are of a watery nature; and thoſe things which are liquid, as water, and ſuch corporeal ſpecies as are reflected by them; and all that either touches or is near them; ought to be painted and united on their lower parts, but ſhould be touched above boldly by their proper Lights and ſhadows.

26. Let the parts of the picture ſo much harmoniſe, that all the ſhadows may appear as if they were but one; embrace whatſoever may be aſſiſtant to you in your deſign, and ſhun whatſoever may be diſagreeable to it.

27. Do not make any touches either with pencil, crayon, or graver, before you have well conſidered and fixed upon your deſign, eſpecially as to the outlines; nor till you have preſent in your mind a perfect idea of what you would do.

28. You may be aſſiſted in many beauties, by means of a looking-glaſs, which you may obſerve from nature; as alſo by thoſe objects you may ſee in an evening, where you have an ample field and a large proſpect.

29. Thoſe things that are painted, to be ſeen in little or ſmall places, muſt be touched very tenderly, and be well united by gradual approach and colours; the degrees of which ought to be more different, more unequal, more ſtrong, and vigorous, as the work is more diſtant.

30. If the picture is to be placed where there is but little Light, the colours ought to be very clear; but if it is ſtrongly enlightened, or in the open air, the colours ought to be very brown.

31. Large *Lights* are to be painted as nicely as poſſibly can be, and you moſt endeavour to loſe them inſenſibly, in the ſhadows which ſucceed them, and encompaſs them about.

Mr. William LIGHTFOOT, was a good Engliſh painter in perſpective, architecture, and landſcape. He began in diſtemper, but afterwards took to oil-painting; he was concerned in contriving and adorning ſome part of the Royal Exchange. He died in London about ninety years ago.

Pirro LIGORIO, was ſcholar of Giulio Romano, lived at Naples and Rome, excelled in hiſtory and architecture, and died in the year 1573.

LILY, to paint in miniature, cover it with white, and ſhade with black and white; do the ſeeds with orpiment and gall-ſtone; and the green of the leaves and ſtalks with verditer, ſhaded with iris green.

The many-flowered LILY, in miniature, for the firſt colour

uſe mine de plomb, then vermilion, and in the ſtrongeſt of the ſhades carmine, and finiſh with the ſame in ſtrokes, which correſpond with the turn of the leaf.

Heighten the lights with mine de plomb and white, and imitate the ſeed with vermilion and carmine. Let the green be done with verditer, and ſhaded with iris green.

The day LILY. There are three ſorts of this flower.

1. Gridelin, a little reddiſh. 2. The gridelin, very pale. 3. The white.

For the firſt, lay on lake and white, and ſhade and finiſh with a deeper mixture of the ſame, with a little black added to it, to ſadden it, eſpecially for the deepeſt places.

For the ſecond, lay on white, mixed with a very little lake and vermilion, ſo that theſe two laſt do hardly appear; then ſhade with black and a little lake, taking care to make the heart of the leaves next the ſtalk redder, which, as well as the ſeed, muſt be of the ſame colour, eſpecially towards the top; and, lower, a little greener.

Let the ſtalk of the ſeed be done with maſticote, ſhaded with bladder green.

The other flowers of this ſort are done with white alone, and ſhaded and finiſhed with black and white.

The ſtalk of theſe laſt, and the green of them all, muſt be of the ſea ſort, ſhaded with iris green.

LIME, calcined ſtone, marble, free-ſtone, chalk, or other matter, burnt by a large fire, in a kiln or furnace built for that purpoſe; for the moſt part to be uſed afterwards in a compoſition of mortar for building; the fire taking away all its humidity and opening its pores, ſo that it becomes eaſily reducible to powder.

Quick LIME, *Unſlacked* LIME, } Is that which is as it comes out of the furnace, and ſlacked Lime, is that waſhed or ſteeped in water.

To dye ſtuff a LIMON, or LEMON *colour*. Boil the ſtuff an hour and a half with three pounds of alum, three ounces of ceruſs, and three ounces of arſenic; pour off the water, then put in freſh, and in the ſame kettle make a liquor of ſixteen pounds of green dyer's weed, three ounces of pot-aſhes, two ounces of turmeric; let them ſettle and boil; then paſs the ſtuff quick through it, and it will be of a good Lemon colour.

To dye ſilk a LEMON *colour*. This dye muſt firſt of all be tenderly handled, and done in weak ſuds, and may be regulated by comparing the colour with a Lemon; which, when done, rinſe and dry it.

LIMNING, is the art of painting in water colours, in contra-

tradiſtinction to painting, properly ſo called, which is done in oil colours.

Limning is by far the more ancient kind of painting: The art of painting in oil is far more modern, it not being known till the year 1410, when it was found out by one John Van Eyck, a Flemiſh painter, better known by the Name of John of Bruges. Before his time all the painters painted in water and freſco alone, both on wooden boards, walls, and elſewhere.

When they made uſe of boards for painting, they uſually glewed a fine linen cloth over them, to prevent their opening, and then laid on a ground of white; they alſo mixed up their colours with water and ſize, or with water and yolks of eggs, well beaten with the branches of a fig-tree; the juice of which, being thus mixed with the eggs, was the mixture with which they painted their pieces.

In Limning, all colours are proper enough, excepting the white made of lime, which is only uſed in freſco.

But the azure and ultramarine muſt always be mixed up with ſize or with gum; becauſe the yolks of eggs give yellow colours a greeniſh tincture.

But before theſe colours, though mixed with ſize, are laid on, there are always applied two lays of hot ſize; the compoſition made with eggs and the juice of fig-tree being only uſed for touching up and finiſhing, and to prevent the neceſſity of having a fire always at hand to keep the ſize hot; yet it is certain, that the ſize colours hold the beſt, and are accordingly always uſed in cartoons, &c. This ſize is made of ſhreds of thin leather or parchment: To Limn on linen they chuſe that which is old, half worn and cloſe; this they do over with white lead, or with a fine plaiſter beaten up with ſize; which when dry, they go over it again with a lay of the ſame ſize.

The colours are all ground in water, each by itſelf; and, in proportion as they are wanted in working, are diluted with ſized water.

If yolks of eggs are to be uſed, they are diluted with a water made of an equal quantity of common water and vinegar, with the yolks, white, and ſhell of an egg; and the ends of the little branches of a fig-tree cut ſmall, all well beaten together in an earthen pan.

If they would have the piece varniſhed, when finiſhed, they go over it with the white of an egg well beaten, and then with varniſh.

But this, however, is only to preſerve it from wet; for the great advantage of Limning conſiſts in its being free from any luſtre, in regard that all its colours, thus void of luſtre, may be ſeen

ſeen in all kinds of lights; which colours in oil, or covered with varniſh, cannot.

Of preparations for LIMNING. 1. Be provided with two ſhells, or ſmall glaſſes, to hold clean water; the one for tempering the colours with, and the other for waſhing your pencils in when they are foul.

2. Beſides thoſe pencils you limn with, have a large clean dry pencil, to cleanſe your work from any kind of duſt that may fall upon it: Theſe pencils are called fitch pencils.

3. A ſharp penknife, for taking hold of any looſe or ſtraggling hairs that may come out of your pencil, either upon the work or among the colours; or to take out ſpecks of any thing that may fall upon your card or table.

4. A paper with a hole cut in it to lay over your card, to keep it from duſt and filth to reſt your hand upon, and to keep the parchment from being ſullied by the ſoil and ſweat of your hand; as alſo for trying your pencils on before you uſe them.

5. Be provided with a quantity of light carnation or fleſh colour, tempered up in a ſhell by itſelf, with a weak gum water, made of white and red lead, if it be for a fair complexion; to which add a little maſticote or Engliſh oker, or both, if it be for a brown complexion.

6. But you muſt be ſure to take care, that the fleſh colour be always lighter than the complexion you would repreſent; for that it may be brought to its true colour.

7. Place your ſeveral ſhadows, for the fleſh colour, in a large horſe muſcle-ſhell in little places diſtinct from one another.

8. Lay a good quantity of white by itſelf, that it may be ready in all ſhadowings, beſides what the ſhadowings are firſt mixed with.

9. For red for the cheeks and lips, temper lake and red lead together; and indigo, or ultramarine, and white for blue ſhadows, as thoſe under the eyes and veins.

10. For grey, faint ſhadows, white, Engliſh oker, and ſometimes maſticote; for deep ſhadows, white, Engliſh oker, umber; for dark ſhadows, lake and pink, which make a good fleſhy ſhadow.

11. In making choice of a light, let it be fair and large, one northerly and not ſoutherly, and free from ſhadows of houſes or trees; and all clear ſky-lights coming in direct from above, and not tranſverſe. As to the room, let it be cloſe and clean, and free from the ſun-beams.

12. As to the manner of ſitting, let the deſk on which you work be ſo ſituate, that, ſitting before it, your left arm may be towards the light, that the light may ſtrike ſideling upon your work.

Let the perſon you are to limn be poſited in the ſame poſture that he himſelf ſhall chuſe, level with you, and not more than ſix yards from you at moſt.

13. Obſerve the perſon's motion, if never ſo ſmall; for the leaſt motion amiſs, if not recalled, will inſenſibly lead you into many errors.

14. When you have finiſhed the face, let the perſon ſtand, not ſit, at a farther diſtance than four or five yards off, for your drawing the poſition of the cloaths.

15. If you are to limn upon ſattin, ſteep iſing-glaſs for twenty-four hours in fair water, and then boil it in ſpirits of wine, until it grow very clammy, which may be known by dipping your finger in it: And, after you have drawn your outlines upon ſattin, waſh it thin over with an indifferent large pencil, as far as your outlines are, which will prevent the colours from ſinking or flowing.

16. The better to prevent your colours from ſinking into your card, paper, or parchment, you deſign to limn on; boil ſome roch alum in ſpring water; then take a bit of a ſpunge, and with it wet the back ſide of the paper that you are to draw on very thin: While the water is hot, be as quick in wetting it as you can; and this will hinder the colours from ſinking.

The practice of LIMNING, *or drawing a face in colours.*

1. As to the beginning of the work: Having all your materials in readineſs, lay the prepared colour on the card, anſwerable to the complexion preſented, even and thin, free from hairs and ſpots over the place where the picture is to be.

2. The ground having been thus laid, and the party placed in a due poſition, begin the work, which is to be done at three ſittings; at the firſt ſitting you are only to dead-colour the face, which will require about two hours time.

3. At the ſecond ſitting, go over the work more curiouſly, adding its particular graces or deformities, couching the colours ſweetly, which will take up about five hours time.

4. At the third ſitting, you muſt finiſh the face, perfecting all that has been left imperfect and rough; putting the deep ſhadows in the face, as in the eyes, brows, and ears, which are the laſt of the work, and are not to be done till the hair, curtain, or back ſide of the picture, and the drapery, be wholly finiſhed.

5. *The operation, or work at firſt ſitting.* Having laid the ground or complexion, in the next place draw the outlines of the face, which do with lake and white mingled: Draw theſe but very faintly, that, if you happen to miſs, either in proportion or colour, you may alter it.

6. When you have done this, add red lead to the former colour for cheeks and lips; but let it be but faint, for you cannot

lighten a deep colour, taking care to make the ſhadows in their due places, as in the cheeks, lips, tip of the chin, and ears, the eyes, and roots of the hair: Do not ſhadow with a flat pencil, but by ſmall touches, and ſo go over the face.

7. Strive, as near as poſſibly you can, in this dead-colouring, to imitate nature rather than to be curious.

8. Having put the red ſhadows into their due places, ſhadow about the colours, borders, and balls of the eyes with a faint blue, and under the eyes and about the temples with a greyiſh blue; heightening the ſhadows as the light falls; alſo the harder ſhadows in the dark ſide of the face, under the eye-brows, chin, and neck.

9. Bring all the work to an equality, but add perfection to no particular part at that time; but imitate the life in likeneſs, roundneſs, boldneſs, poſture, colour, and the like.

10. Laſtly, touch at the hair with a ſuitable colour, in ſuch curls, folds, and form, as may either agree with the life, or grace the picture: Fill the empty places with colour, and deepen it more ſtrongly than in the deepeſt ſhadowed before.

11. *The operation at the ſecond ſitting.* As it has been before laid but rudely, ſo you muſt ſweeten thoſe varieties which nature affords, with the ſame colours, and in the ſame place, driving them one into another; yet ſo as that no lump or ſpot of colour or rough edge may appear in the whole of the work; and this is to be done with a ſharper pencil than that you uſed before.

12. Having done this, go to the back ſide of the picture, which, if it be a landſcape, or a blue or red ſattin curtain; if it be blue, temper up as much bice as will cover a card, which mix very well with gum; and draw the outlines of the curtain with a pencil, as alſo the whole picture: Then, on the whole ground on which you intend to lay the blue, lay with a large pencil thinly, or airily, over the whole ground; and afterwards lay over the ſame a ſubſtantial body of colour, which ought to be done nimbly, keeping the colour moiſt, and not ſuffering any part to be dry till you have covered the whole.

13. If the colour of the curtain is to be of a crimſon colour, lay the ground of a thin colour, and lay the light with a thin wateriſh colour where they fall; and, while the ground is yet wet, lay the ſtrong and hard ſhadows cloſe by the other lights, with a ſtrong dark colour, tempered ſomething thickiſh.

14. Then lay the linen with a faint white, and the drapery flat, of ſuch a colour as you would have it be.

15. Obſerve what ſhadows in the face are too light or too deep for the curtain behind, and the drapery, and reduce each to their due degree of height; draw the lines of the eye-lids,

and ſhadow the entrance into the ear, deepneſs of the eyes, and any eminent mark in the face, with a very ſharp pencil.

16. In the laſt place, go over the hair, giving it the colour that it appears to have in the life, caſting ſome looſe locks of hair over the ground; which will cauſe the picture to ſtand as it were at a diſtance from the curtain.

17. Let the linen be ſhadowed with white, black, and a little yellow and blue; the black being deepened with ivory-black, mixed with a little lake and indigo.

18. *The operation at the third ſitting.* This third operation is taken up wholly in giving ſtrong touches where you perceive occaſion, in rounding, ſmoothing, and colouring the face; which, to do, will be the better perceived after the curtain and drapery has been done.

19. In the next place, conſider whatſoever may conduce to render the work as perfect as you poſſibly can, either as to caſts of the eyes, moles, ſcars, windings of the mouth, geſtures, or the like; and take care never to make your deepeſt ſhadows ſo deep as they appear in the life.

20. *How to heighten and deepen the ground colour for hair.* If it be in miniature that you paint, the colour of the hair muſt not be ſo light as the lighteſt, nor ſo deep as the deepeſt ſhadow; but in a middle proportion between both, on which you may either heighten or deepen at pleaſure.

21. If it be laid on with the lighteſt colour, it will require a long time to work it down; and, if it be as dark as the deepeſt, it cannot be deepened lower with the ſame colour.

22. And, beſides, this ground colour muſt be laid exceedingly even and ſmooth; and the quicker it is done the better it will be.

23. A gooſe-quill pencil is the moſt proper to be uſed in doing this, and the temper of it ought not to be too thin; becauſe, if ſo, the parchment will appear through the ground, which ought to be covered; and you ſhould rather go over it again with the ſame colour, than to let it appear ſo.

Of LIMNING *drapery.* See DRAPERY.

Of LIMNING *landſcape.* All the various expreſſions of landſcape are innumerable, there being as many as there are painters and fancies, and therefore not to be compriſed within rules. But, for the general, obſerve theſe which follow.

1. Always begin with the ſky, ſun-beams, or lighteſt parts firſt; next, thoſe beams that are yellowiſh, which make of maſticote and white; next, the blueneſs of the ſky, which make with ultramarine or ſalt alone, and mix lake and white for purple clouds.

2. At the firſt working lay the piece all over with dead colour,

lour, leaving no part of the ground uncoloured; but take care to lay the colours ſmooth and even.

3. Work your ſky downwards towards the horizon fainter and fainter, as it draws nearer and nearer the earth, except in tempeſtuous ſkies; work the tops of mountains far remote, ſo faint that they may appear loſt in the air.

4. Make low places, and ſuch as are near the ground, of the colour of the earth, of a dark yellowiſh or brown, or green; the next to them of a lighter green; and ſo ſucceſſively as they loſe in diſtance, ſo make them abate in colour.

5. Do not make any thing that appears at a diſtance perfect, by expreſſing any particular ſigns or tokens that it has; but expreſs it as weakly and faintly as it appears to the eye.

6. Always place light againſt dark, and dark againſt light; by which means you may extend the proſpect as though very far off.

7. Let all the ſhadows loſe their force as they remove from the eye; always making the ſtrongeſt ſhadows the neareſt at hand.

8. Laſtly, boil an ounce of iſing-glaſs in ſmall pieces in four quarts of conduit water, till the iſing-glaſs is diſſolved, and ſet it by for uſe: With this, mix ſpirit, or oil of cloves, roſes, cinnamon, or ambergreaſe, and lay it on and about the picture where it is not coloured, leſt it ſhould change the colours; but upon the colours uſe it without the perfumes; ſo it will varniſh your pictures and give them a gloſs, and cauſe them to retain the beauty and luſtre of their colours; and alſo take away any ill ſcent which they may otherwiſe have.

9. For trees, you muſt have a dark green, which you may make by mixing verditer with pink and indigo; the deepeſt ſhadows of all in green are made with ſap green and indigo.

To preſerve colours in LIMNING. Temper a ſhell of white with a few drops of pure ſpirit of roſemary; and, however dead and faded the picture was before, it will inſtantly become perfect bright.

This water or ſpirit alſo prevents the bubbles in white and umber, which are troubleſome in grinding.

The dead-colouring of a whole figure deſigned for hiſtorical LIMNING. This is performed two ways: 1. By tempering a fleſh colour ſomewhat lighter than you deſign it ſhall be, after it is wrought down by the variety of ſhadowing mixtures; which fleſh colour you muſt temper in a large ſhell, becauſe it requires a quantity; and the mixture muſt be good, neither too thick nor too thin.

2. Then, having taken a good gooſe-quill pencil full of the colour, lay it on the place where you deſign the figure, quick,

even, and ſmooth; if you be not very briſk in laying it on, it will not lie even.

3. The other method is this; you may uſe the beſt flake white well prepared, inſtead of fleſh colour, and lay it on with the ſame-ſized pencil as before-mentioned, and ſo your dead colour is as the oil-painters do, which muſt de done free, rough, and boldeſt of all.

4. But take notice, that all the outlines of your figure are firſt drawn with a temperature of flake and white, before the ground colour for the fleſh is laid on: Alſo, in dead-colouring, the ſhadows which are next to the light muſt not be left too dark, harſh, or hard; but faint, even, and miſty.

5. When you have done this, mix flake white and a little red lead, and, with that, touch up all the deep places both in face and body, as your judgment ſhall direct.

6. Let this be done exceeding faintly, becauſe, if it be laid too deep, it cannot be heightened up again without running the hazard of ſpoiling it; whereas, if it be too light, it may be deepened gradually as you pleaſe.

7. Make, in the face, a delicate faintneſs, or faint red, inclining to a purple under the eyes; then, with the aforeſaid mixture, touch the tips of the ears, as alſo the cheeks, lips, and bottom of the chin; and ſo proceed to the ſole of the foot, touching with the glowing colour in all the following muſcles and places.

8. Then for the general yellowiſh glowing ſhadows mix gall-ſtone and pink, and add in ſome places a little lake to the former mixture or temperature.

9. And, whereas you will perceive in ſome parts of the body in the life a faint bluiſh, this may be expreſſed with a temperature or mixture of indigo and white; and thus you are to proceed according to the ſubject you paint after, whether the life, or copying after painting.

10. All theſe ſtrokes are to be expreſſed after the manner of hatching with a pen, waſhing it along with gentle and faint ſtrokes.

11. But be ſure to take care in this dead-colouring to cover your ground colour, with the aforeſaid red and other ſhadows.

12. You need not be over curious in the firſt working; but rather aim at a good, free, and bold imitation of nature, than an extreme neat, ſet, or ſtiff way.

13. Be not diſcouraged at the roughneſs of your colour; for you may work that down, and touch it by degrees with the other ſhadows, though you do not do it at the firſt.

14. After this, ſweeten and heighten your ſhadows by degrees, according as the light falls.

15. Then touch it in ſome places with ſtrong touches, and bring

bring your work up together in these places to an equal roundness and strength; not finishing any part of the figure before the other, but viewing and working all the parts curiously alike, but yet in a manner as it were at random.

16. Then take notice of the rounding, colouring, and shadowing, or whatever else is requisite to the perfection of the work.

17. The fainter shadows being done, sweeten and work them into the red still.

18. View over attentively all the variety of colouring, and nicely delineate with your pencil those several varieties of nature which were but rudely traced out before.

19. In doing this, use the same colour in the same places you had used before, working, driving, and sweetening the same colours one into another, that nothing be left in the piece with a harsh edge, uneven, or in a lump; but make all appear sweet, or driven one into another with the point of somewhat a sharper pencil than that which you used at first, so that the shadows may lie dispersed, soft, sweet, smooth, and gently extended one into another like air.

20. In the last place, take notice that skies, water-trees, plants, flowers, and ground, are all to be dead-coloured before the figures.

LINEAMENT, is a fine stroke or line observed in a human face, and that forms the delicacy thereof, being that which preserves the resemblance thereof, and occasions the relation of likeness or unlikeness to any other face.

It is by these, that physiognomists pretend to judge of the temper and manners of people.

Painters use the word Lineament for the outlines of a face.

LINENS, in miniature, are painted thus; having drawn your folds, as when you do drapery, lay on white all over, and then proceed and finish with a mixture of ultramarine, black, and white, taking more or less of this last according to the degrees you want of light and shade; and, for the deepest folds, take bistre and a little white, using it sparingly, and with artful touches; and you may even take the former pure for the deepest shades, where you must express the folds, and lose them among the rest.

They may be made after a different manner, by laying on all over a very pale mixture of ultramarine, black, and white, and then proceeding in the manner above-directed with the same mixture, but a little deeper: And, when the shades are striped and finished, you must heighten the lights with pure white, blending them with the first colour or ground. But of what sort soever you make them, when you finish them, prepare some yellowish tints for certain places, laying them on so lightly, as

it were a waſh, ſo as to be tranſparent, and neither to hide the ſtriping nor the ſhades.

Yellow Linens are made of white, mixed with a little oker; then proceed and finiſh with biſtre, mixed with white and oker, and for the deepeſt ſhades with biſtre alone. Before you finiſh, lay on tints of oker and white here and there, and others of white and ultramarine, as well upon the ſhades as lights, but very thin; and then ſtipple and ſcumble the whole together, and it will have a fine effect: As you finiſh, touch up the extremities of the lights with maſticote and white. Theſe Linens and the former you may ſtripe like Egyptian ſcarves, with blue, red, ultramarine, and carmine; a red between two blue ones, very bright on the lights, and ſtronger in the ſhades. The heads of virgins are generally dreſſed with veils of this ſort; and of the ſame are made a ſort of handkerchiefs for an open breaſt, becauſe they are very becoming to the fleſh.

When you would have either the one or the other of them to be tranſparent, and ſhew whatever, whether ſtuff or fleſh, is underneath, lay them on at firſt very thin, and mingle with your ſhading colour a little of that which is under them, particularly at the extremities of the ſhades; and touch only the extremities of the lights, only for the yellows, with maſticote and white, and of the whites with white alone.

They are alſo to be made another way, eſpecially when you would have them quite tranſparent, as muſlin, lawn, or gauſe; for this purpoſe, you muſt begin and finiſh what is beneath, as if nothing was to be over it; then heighten the brighteſt folds with white or maſticote, and ſhade with biſtre, and white or black, or blue and white, according to the colour you aim at; and taking away from the livelineſs of the reſt by foiling it over, though that be not altogether neceſſary but for the darkeſt parts.

To take iron moulds or ſtains out of LINEN. Take the juice of a lemon, warm it with a little powder of alum diſſolved in it; wet it, and, as it is wet, dry it with a ſpoon, wherein is a live coal; continue to do ſo for the ſpace of two hours, and the ſpot or iron mould will in a waſhing or two diſappear. This will take out ſpots of ink, &c.

An excellent way to take ſpots or ſtains out of LINEN. Take powder of burnt bone finely ſifted, and place it between two boards, preſſing it hard, with ſome of the powder on either ſide the ſpot, and in two days it will be quite vaniſhed.

Another excellent way to take ſpots or ſtains out of LINEN. Diſſolve bay ſalt in fair water, and ſteep the Linen in it; then take juice of ſorrel and ſharp vinegar, and rub the ſpot with them, ſuffering it likewiſe to ſoak in; and in ſo doing often it will diſappear.

To take away ink ſtains, ſtains with fruit, &c. Take powder of alum half an ounce, juice of houſleek or ſen-green two ounces, and apply them, after the alum has been diſſolved, very hot, and the buſineſs will be done.

How to keep LINEN, *laid up without uſing, from damage many years.* The Linen having been well waſhed and well dried in the ſun, fold it up, and ſcatter in the folding the powder of cedar wood, or cedar ſmall ground, having firſt perfumed the cheſt with ſtorax, by which means not only dampneſs is prevented, but worms and moths.

Another way. Take of ſpike flowers one pound, coſtmary half a pound, palm a ſmall handful, penny-royal the ſame quantity, mace an ounce, orrace powder half an ounce; ſoak theſe in white wine, and diſtil them, and ſprinkle your cloaths in a fair day; let them be thoroughly dry, and then lay them up.

To remove ſtains occaſioned by wine or vinegar. Steep the thing ſtained in new milk for a night; then apply rennet to the ſtain, rubbing it in, and by ſo doing twice or thrice you will find it as fair as it was at firſt.

To make LINEN *that is turned yellow very white.* Heat milk over the fire, and add to a gallon a pound of cake ſoap ſcraped in, ſo that it may diſſolve; and, when the cloaths have boiled therein, take them out, and clap them into a lather of hot water, and waſh them out ſpeedily.

To whiten LINEN *cloth the beſt way.* Buck your cloth well, and ſpread it upon the graſs, and ſprinkle it with alum water, letting lie abroad for two or three days and nights; then buck it again with ſoap and fullers-earth, and uſe it as before, and it will be both thick and white.

To make any LINEN *at the firſt appearance look like diaper.* When it has been new waſhed, ſpread it upon a table, ſomewhat damp, and ſprinkle it over with a bruſh dipped in alum and roſe water, in form and manner as ſhall beſt ſuit your fancy.

To dye LINEN *thread or cloth a good red.* Soak a pound of ſamfleur 24 hours in two gallons of water, heating it over a gentle fire; then add half a pound of raſped braſil, two ounces of vermilion, and an ounce of alum diſſolved in fair water; dip the linen, and order it as other things.

How to thicken LINEN *cloth for ſkreens, &c.* Grind whiting with ſize, and, to prevent its cracking, add a little honey to it; hen lay it upon the cloth with a ſoft and ſmooth bruſh, two or hree times, ſuffering it to dry betwixt each time; and, for the aſt laying, ſmooth it over with Spaniſh white, laid with linſeed oil, the oil being firſt heated and mixed with a ſmall quantity of litharge of gold, to prepare it for the better enduring the weather; and by thus doing it will be laſting.

How

How to make Spaniſh white. Grind white chalk, with a tenth part of alum, with fair water, till it is very ſoft, and afterwards bring them to a thickneſs, and make them into balls; lay them ſo that they may dry leiſurely; then, when you uſe them, heat them well in the fire.

LINSEED, a grain that has ſeveral uſeful properties, and yields by expreſſion an oil that has moſt of the qualities of nut oil, and is accordingly often uſed inſtead of it in painting.

LITHARGE, a metalline ſubſtance, formed of the ſpume of lead.

This preparation, or, as it may more properly be called, recrement of lead, is of two kinds, differing in colour, though in no other quality: The ancients, as well as ourſelves, obſerved this difference, and called the one, as we do, Litharge of gold, and the other Litharge of ſilver. This recrement of lead is not prepared by a formal proceſs on purpoſe; it is collected from the furnaces where ſilver is ſeparated from lead, or from thoſe where gold and ſilver are purified by means of that metal; but, in the furnaces uſed for either of thoſe purpoſes, it is generally run into lead again, to ſerve for the ſame or other uſes. The Litharge ſold in the ſhops is produced in the copper works where lead has been uſed to purify that metal, or to ſeparate ſilver from it. Of all the various metalline and mineral ſubſtances which are ſeparated from gold or ſilver by means of lead, there is none but copper that remains imbodied in, and intimately joined with that metal after ſcorification; or, finally, if they remain mixed with it longer, they ſplit and deſtroy the veſſels. The recrement produced from this combination of lead with copper is our common Litharge; it is of a yellowiſh, or redder colour, as the fire has been more or leſs ſtrong, and is always compoſed of a multitude of thin flakes, reſembling the ſpangles of talc, in thoſe foſſils called micæ, or glimmers.

The greateſt quantities of Litharge are brought from Sweden, Germany, and Denmark; Poland furniſhes ſome, as does alſo our own country, but the Dantzic kind is eſteemed the moſt valuable: The beſt Litharge is that which is moſt calcined, and of the livelieſt colour. Litharge, on the whole, is properly lead vitrified, either alone or with a mixture of copper.

LIVERWORT: This plant is ſometimes red and ſometimes blue; as for the latter, let it be covered all over with ultramarine, white, and a little carmine, or lake; ſhade the inſide of the leaves with this mixture, but let it be deeper, except for the outermoſt, for which, and the outſide of all, add ſome indigo and white, to deaden the colour.

For the red, do that over with columbine, lake, and white, very pale; and finiſh with leſs white.

As

As for the green, use verditer, masticote, and a little bistre; shade with iris and a little bistre, but chiefly for the outside of the leaves.

LIXIVIUM, is a liquor, made by the infusion of wood-ashes, or any burnt substances, which is more or less penetrating, as it is more or less impregnated with salts and fiery particles abounding therein; that which is left after the evaporation of such a liquor, is called a lixivial, or lixiviate salt, such as those are that are made by incineration.

Lixiviums are of notable use in extracting tinctures of vegetables for dying, staining, or painting colours.

L. K. A. signifies Luke Kilian of Augusta, who engraved Tintoret's and Spranger's works.

L. / L. L. / L. S. } signifies Lambert, Lombard, Susterman, or Suavius, all which signify the same person.

L. L. *Lollius* } stands for Lorenzi Lolli, Guido Reni's scholar.

Rene or *Renato* LOCHON made this mark under several portraits and works of Polydore, in the year 1651.

Peter LOMBARDI, who engraved the works of Monsieur Sampagna, used this mark.

LOOKING-*glass*. *The method of making plate or* LOOKING-*glass*. The matter of which Looking-glasses are made is much the same as that of other glass works, viz. an alcali salt and sand.

But this salt ought not to be extracted from polverine, or the ashes of the Syrian kali; but that of barillia, or the ashes of a plant of that nature, of the genus or same kind of kali's, as that which grows about Alicant in Spain.

It is indeed very rare for us to procure the barillia pure, the Spaniards commonly mixing another herb with it in burning it, which alters the quality of it; or else they add sand to it, to augment its weight.

This may be easily discovered, if the addition be not made till after the boiling of the ashes; but, if it be done in the boiling of them, it is impossible to discover it.

This adulteration of the matter is the cause of those threads and other defects that appear in plate glass.

The manner of preparing this salt is the cleansing it well from all foreign matters; pounding or grinding it with a kind of mill, and sifting it pretty fine.

The sand must be sifted and washed so often, till the water that comes from it is very clear; then it is to be dried again, and mixed with the salt, and the mixture passed through another sieve.

When

When this has been done, the mixture is put into the annealing furnace for about two hours, in which time it becomes very light and white; and, being in this ſtate, it is called frit, or fritta, which muſt be laid up in a clean dry place, for a year at leaſt, or more, to give the materials ſufficient time to incorporate.

When this frit is to be uſed, it is laid ſome hours in the furnace, and the fragments or ſhards of old and ill-made glaſſes are to be added to ſome of it; theſe ſhards having been firſt calcined, by being heated red-hot in the furnace, and afterwards caſt into cold water. MANGANESE, which ſee, muſt alſo be added to this mixture, to promote the fuſion and purification of it.

The method of blowing LOOKING-*glaſs plates.* The work-houſe, furnaces, and utenſils, you will find under the articles FURNACE, GLASS, and INSTRUMENTS.

The melting-pots, in which the forementioned materials or mixture is fuſed, are in height about 35 inches, and in diameter 38.

Theſe materials being vitrified or melted into glaſs by the heat of the fire, and ſufficiently refined, the operation is performed in the following manner:

The maſter workman dips his blowing iron into it, once or oftener, till he has gotten matter upon it ſufficient for the ſize of the plate he is to make.

Then he ſteps up on a kind of block or ſtool, about five feet high, that he may have the more liberty or room to balance it, as it lengthens in the blowing.

If the matter on the iron be too heavy for the workman to ſuſtain on his blowing iron, he is aſſiſted by two or more attendants, who hold pieces of wood under the glaſs, to prevent it from falling off the iron, by reaſon of its own weight.

The glaſs has thus ſeveral repeated heatings and blowings given it, till it be at length brought to the compaſs proper for its thickneſs, and the quantity of metal taken out; after which it is cut off with the forceps, at the end oppoſite to the iron, in order to point it with the pointil.

The pointil is a long firm piece of iron, having a piece going acroſs one of its ends, in the form of a T; in order to point the glaſs, the head of the T is plunged into the melting pot, and, with the liquid glaſs that comes out ſticking to it, they faſten it to the end of the glaſs before cut off.

Having faſtened it ſufficiently, they ſeparate the other end of the glaſs from the blowing iron, and, inſtead of that, make uſe of the pointil to carry it to the furnaces fitted for that purpoſe, where they continue to enlarge it, by ſeveral repeated heatings, till it is of an equal thickneſs in every part.

Having done this, they cut it open with the forceps, not only on

on the side by which it stuck to the blowing iron, but also the whole length of the cylinder; and, when they give it a sufficient heating, it is in a condition to be intirely opened, extended, and flattened.

The manner of doing which is the same as for table glass. See the article GLASS.

The glass, having been sufficiently flatted, is set into the annealing furnace for ten or fifteen days, according to its size and thickness.

Looking-glasses, thus blown, ought never to be more than 45, or at most 50 inches in length, and proportionable in breadth. Those which exceed these dimensions, as has been frequently experienced in those of the Venetian make, cannot have a thickness sufficient to bear the grinding, and, besides, are subject to warp, which causes them to be false, hindering them from regularly reflecting the objects.

The method of casting or running large LOOKING-*glass plates.*

When the matter has been sufficiently vitrified, see the article FURNACES, refined, and settled, which is commonly in about 24 hours; they fill the cisterns, which are in the same furnace, and which is left there about six hours more, till such time as it appears all white, by means of the excessive heat.

To get the cisterns with the metal out of the furnace, they use a large iron chain, which opens and shuts with hooks and eyes; from the middle of which, on each side, arise two massive iron pins, by which, with the help of pullies, the cisterns are raised on a kind of carriage, of a proper height, and are thus brought to the table, where the glass is to be run.

Then, slipping off the bottom of the cistern, a torrent of fiery matter rushes forth, and presently covers the table prepared for that purpose.

This table, on which the glass is to be run, is made of pot metal, in length about nine feet, and proportionable in breadth. It is supported on a wooden frame, with truckles, for the conveniency of removing from one carquasie, or annealing furnace, to another, in proportion as they are filled.

For forming the thickness of a glass, there are two iron rulers or rims placed around the edge of the table, and on these rest the two ends of a sort of roller, which is used to drive the liquid matter before it to the end of the table or mould.

These iron rulers are moveable, so that they may be set closer or further apart at pleasure, and so determine the breadth of the glasses, and also keep in the liquid glass from running off at the edges. The glass, being taken out of the annealing furnace, needs only to be ground, polished, and foliated, for which see GRINDING, POLISHING, and FOLIATING.

LOQUACITY,

LOQUACITY, is repreſented, in painting, &c. by a young woman gaping, in a habit of changeable taffety, with crickets and tongues, a ſwallow on the crown of her head, going to chirp, and a magpye and a duck at her feet.

The magpye denotes prating, that offends the ears; the tongues alſo too much talkativeneſs; the ſwallow, on her head, that prating diſturbs the head of a quiet ſtudious perſon; the duck, at her feet, denotes much talkativeneſs.

John LOTEN, was a Hollander, and a landſcape-painter. He lived and painted many years here in a manner very ſylvan, like the glades and ridings of our parks in England

He delighted particularly in open trees. His landſcapes are generally very large He did many ſtorms at land, accompanied with ſhowers of rain, tearing up trees, daſhings of water, and water-falls, cattle running to ſhelter; which pieces were admirably good.

He painted alſo many views of the Alps in Switzerland, where he lived many years.

His works abound among us. He died in London about 73 years ago.

LOVE. When any thing is repreſented as good to us, that makes us to conceive a Love for it; and, when it is repreſented as ill or hurtful to us, that excites our hatred.

Love, then, is an emotion of the ſoul, cauſed by motions which excite it voluntarily to join itſelf to ſuch objects as appear agreeable to it.

The motions of this paſſion, when it is ſimple, are very ſoft and ſimple; for the forehead will be ſmooth, the eye-brows will be a little elevated over the place where the eye-balls ſhall be turned.

The head inclined towards the object of the paſſion, the eyes may be moderately open, the white very lively and ſhining, and the eye-ball, being gently turned towards the object, will appear a little ſparkling and elevated.

The noſe receives no alteration, nor any of the parts of the face; which being only filled with ſpirits, that warm and enliven it, render the complexion more freſh and lively, and particularly the cheeks and lips; the mouth muſt be a little open, the corners a little turned up; the lips will appear moiſt, and this moiſtneſs may be cauſed by vapours ariſing from the heart. See plate V.

LOVE *reconciled*, is repreſented, in painting, &c. by a maid wearing a curious ſapphire about her neck; holding in one hand a cup, and two little Cupids in the other.

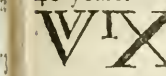
The ſapphire is of a celeſtial colour, has a virtue to reconcile, and precious ſtones commonly do ſo; the two Cupids, that the falling

falling out of lovers is the renewing of Love; they ſtriving which ſhould outdo each other, ſo that Love becomes redoubled.

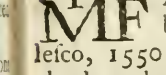
LOYALTY, is repreſented, in painting, &c by a woman in a thin garment; in one hand holding a lighted lanthorn, on which ſhe gazes; in the other a maſk, with many patches; ſtanding as if ſhe would fling it againſt the wall.—The thin raiment ſhews that the words of a loyal perſon ſhould be accompanied with ſincerity; the lanthorn, that a man ſhould be of the ſame quality within and without, as the lanthorn ſends out the ſame light as is within; the maſk, her deſpiſing all feigning, double meaning and equivocation.

LUCAS P R. ſignifies Luke Renni, the Roman, Raphael's ſcholar.

LUCAS *Van Leyden*, born in 1494, ſcholar of his father and Corn. Englebert, lived in Holland and the Low Countries, excelled in hiſtory and engraving; died in the year 1533, aged 40 years.

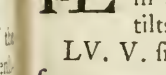


This mark is ſeen in ſome plates of Lucas Van Leyden, and the former part of this mark is under a St. Veronica, holding the holy ſhrowd.



Michael of LUCCA uſed this mark under a St. Sebaſtian, engraven after the manner of Michelagnoleſco, 1550; and we find the ſame mark in a Madona of Raphael, and after it Erry Exc.

LUST is repreſented, in painting, &c. by a pretty handſome lady, with coarſe black hair, plaited about her temples, ſparkling wanton eyes, her noſe turning upward, leaning upon her elbow; a ſcorpion in her hand, an he-goat by her ſide, and a vine with grapes.—The ſcorpion is an emblem of Luſt, as is the he-goat; her poſture denotes idleneſs, which foments Luſt; the vine is a token of Luſt; for ſine Cerere & Baccho friget Venus.



Hans LUTENSACH uſed this mark. He engraved in a book, for the nuptials of the emperor Ferdinand, tilts, tournaments, and rejoicings in Callot's manner.

LV. V. ſignifies Lucas Van Uſter, in ſome of Titian's landſcapes

LUXURY, is repreſented, in painting, &c. by a young damſel with hair finely curled, in a manner naked; ſits upon a crocodile, and makes much of a partridge.—Naked, becauſe Luxury ſquanders away the goods of fortune, and deſtroys thoſe of the ſoul; the crocodile, for her fœcundity, denotes Luxury.

MAD-

M.

MADDER, a root of a plant, much uſed by dyers, to make the moſt ſolid and rich red colour.

It is common enough, but generally comes from Holland; and, if it is good, it is red; it is finer than braſil, and, before you uſe it, it muſt be finely powdered, to give the better colour.

To extract a tincture of MADDER *for lake.*

This is done by the ſame method as is done for extracting a lake from braſil, and will produce a fine colour, which make into troches, drying them, and it will be a perfect lake, and very fine for uſe. See LAKE.

MAF. See RAIMONDI.

Thomas MANBY, was a good Engliſh landſcape painter, who had been ſeveral times in Italy, and conſequently painted much after the Italian manner.

He was famous for bringing over a good collection of pictures, which were ſold at the banqueting-houſe, about the latter end of king Charles II's reign. He died in London about the year 1692.

MANGANESE, a very poor kind of iron ore.

It is a denſe, ponderous, and heavy ſubſtance, in its fineſt and pureſt pieces, approaching greatly to the texture of the lapis hematites, being compoſed of regular parallel ſtriæ, diverging from a center to a circumference. This kind, however, is rare; beſides which, there is another a ſomewhat leſs pure kind, of an iron grey colour, and irregularly ſtreaked like the ſteel-grained lead ores. But the common Manganeſe is of a perfectly irregular ſtructure. It is very heavy, moderately hard, and of a deep duſky grey, approaching to black, though ſometimes of a ferrugineous brown. It is found in large maſſes of no determinate ſhape, and of a rude, rugged, and unequal ſurface.

Manganeſe gives fire but difficultly with ſteel, and makes no effervescence with aqua-fortis. It is found in many parts of England and Germany.

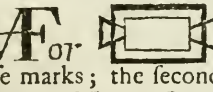
This ſubſtance is of vaſt uſe in the glaſs trade; but neither the induſtrious Neri, nor any others who have written of the art, can ever deliver the true proportions in which it is to be mixed with the glaſs metal on the ſeveral occaſions. The ſame thing is alſo to be obſerved, in regard to zaffer, another ſubſtance in continual uſe with them: And the reaſon of this is, that there is vaſt difference in the quality of theſe bodies; ſome of which are ſold, being very pure and rich; others are good for almoſt nothing,

nothing, and much of middle degrees of purity between theſe. For this reaſon there is no determining how much of each is to be added to the glaſs, but the conciator adds them at ſeveral times, and in ſmall quantities, and takes frequent proofs by his eye, till he knows that they are properly proportioned.

MANNEQUIN, in painting, is uſed to ſignify a little ſtatue or model, ordinarily made of wax, and ſometimes of wood; the junctures of which are ſo contrived, as that it may be put into any attitude one pleaſes, and its draperies and their folds be diſpoſed, as one would have them.

MANNER, in painting, is a habitude that a man acquires in the three principal parts of painting in the management of colours, lights, and ſhadows, which is either good or bad, according as the painter has practiſed more or leſs after the truth, with judgment and ſtudy. But the beſt painter is he, who has no Manner at all; the good or bad choice he makes, is called a good or bad goût.

Andrea MANTEGNA; in his time the art of engraving was found out by Maſo Finiquerra, a goldſmith of Florence, and firſt practiſed by Andrea; he was born in the year 1431; was ſcholar to Jacopo Squarcione; lived at Mantua and Rome; excelled in hiſtory and portraits; died in the year 1517, aged 86 years.



Andrew MANTEGNA, of Mantua, or Padua, painter and engraver, uſed theſe marks; the ſecond mark is found in the ten plates of the triumph of Julius Cæſar, engraven by himſelf, and afterwards cut in wood in 1599, by Andrew Andreani of Mantua.

Carlo MARATTI, born in 1625; ſcholar to Andrea Sacchi; lived at Rome; excelled in hiſtory and portraits, and died in the year 1713.

Colouring of MARBLE. The colouring of Marble is a nice art; and, in order to ſucceed in it, the pieces of Marble on which the experiments are tried, muſt be well poliſhed, and clear from the leaſt ſpot or vein. The harder the Marble is, the better it will bear the heat neceſſary in the operation; therefore alabaſter, and the common ſoft white Marble, are very improper to perform theſe operations upon.

Heat is always neceſſary for the opening the pores of the Marble, ſo as to render it fit to receive the colours; but the Marble muſt never be made red-hot, for then the texture of the Marble itſelf is injured, and the colours are burnt, and loſe their beauty. Too ſmall a degree of heat is as bad as too great; for, in this caſe, tho' the Marble receives the colour, it will not be fixed in it, nor ſtrike deep enough. Some colours will ſtrike, even cold; but they are never ſo well ſunk in, as when a good degree of heat

is uſed. The proper degree is that, which, without making the Marble red, will make the liquor boil upon its ſurface. The menſtruums, uſed to ſtrike in the colours, muſt be varied according to the nature of the colour to be uſed. A lixivium made with horſes or dogs urine, with four parts quick-lime, and one part pot-aſhes, is excellent for ſome colours; common ley of wood-aſhes does very well for others: For ſome ſpirit of wine is beſt; and finally, for others, oily liquors, or common white wine.

The colours which have been found to ſucceed beſt with the peculiar menſtruums, are theſe: Stone blue diſſolved in ſix times the quantity of ſpirits of wine, or of the urinous lixivium, and that colour which the painters call litmoſe, diſſolved in common ley of wood-aſhes. An extract of ſaffron, and that colour made of buckthorn-berries, and called by the painters ſap green, both ſucceed well diſſolved in urine and quick-lime, and tolerably well in ſpirits of wine. Vermilion, and a fine powder of cochineal, ſucceed alſo very well in the ſame liquors. Dragons blood ſucceeds very well in ſpirits of wine; as does alſo a tincture of logwood in the ſame ſpirits. Alkanet root gives a fine colour; but the only menſtruum to be uſed for this is oil of turpentine; for neither ſpirits of wine, nor any lixivium, will do with it. There is another kind of ſanguis draconis, called dragons blood in tears, which, mixed with urine alone, gives a very elegant colour. Phil. Tranſ. N°. 268. Beſides theſe mixtures of colours and menſtruums, there are ſome colours which are to be laid on dry and unmixed. Theſe are dragons blood, of the pureſt kind, for a red; gamboge, for a yellow; green wax, for a green; common brimſtone, pitch, and turpentine, for a brown colour. The Marble, for theſe experiments, muſt be made conſiderably hot, and then the colours are to be rubbed on dry in the lump; ſome of theſe colours, when once given, remain immutable; others are eaſily changed or deſtroyed. Thus the red colour given by dragons blood, or by a decoction of logwood, will be wholly taken away by oil of tartar, and the poliſh of the Marble not hurt by it. A fine gold colour is given in the following manner: Take crude armoniac, vitriol, and verdigreaſe, of each equal quantities; white vitriol ſucceeds beſt, and all muſt be thoroughly mixed in fine powder.

The ſtaining of Marble to all the degrees of red, or yellow, by ſolutions of dragons blood, or gamboge, may be done by reducing theſe gums to powder, and grinding them with the ſpirits of wine in a glaſs mortar; but for ſmaller attempts no method is ſo good as the mixing a little of either of theſe powders with ſpirits of wine in a ſilver ſpoon, and holding it over burning charcoal. By this means a fine tincture will be extracted, and,

with

with a pencil dipped in this, the fineſt traces may be made on the Marble, while cold; which, on the heating it, either on ſand or in a baker's oven, will all ſink very deep, and remain perfectly diſtinct in the ſtone. It is very eaſy to make the ground colour of the Marble red or yellow, by this means, and leave white veins in it. This is to be done by covering the places where the whiteneſs is to remain, with ſome white paint, or even with two or three doubles only of paper; either of which will prevent the colour from penetrating in that part. All the degrees of red are to be given to Marble by means of this gum alone. A ſlight tincture of it, without the aſſiſtance of heat to the Marble, gives only a pale fleſh colour, but the ſtronger tincture gives it yet deeper; to this the aſſiſtance of heat adds yet greatly; and, finally, the addition of a little pitch to the tincture gives it a tendency to blackneſs, or any degree of deep red that is deſired.

A blue colour may be given alſo to Marble, by diſſolving turnſole in a lixivium of lime and urine, or in the volatile ſpirit of urine; but this has always a tendency to purple, whether made by the one or the other of theſe ways. A better blue, and uſed in an eaſier manner, is furniſhed by the Canary turnſole; a ſubſtance well known among the dyers: This needs only to be diſſolved in water, and drawn on the place with a pencil; this penetrates very deep into the Marble, and the colour may be increaſed by drawing the pencil wetted afreſh ſeveral times over the ſame lines. This colour is ſubject to ſpread and diffuſe itſelf irregularly; but it may be kept in regular bounds by circumſcribing its lines with beds of wax, or any other ſuch ſubſtance. It is to be obſerved that this colour ſhould always be laid on cold, and no heat given even afterwards to the Marble. And one great advantage of this colour is, that it is therefore eaſily added to Marbles already ſtained with any other colours, and it is a very beautiful tinge, and laſts a long time.

To MARBLE *books or paper.* Diſſolve four ounces of gum arabic in two quarts of fair water; then provide ſeveral colours mixed with water in pots or ſhells, and with pencils peculiar to every colour ſprinkle them by way of intermixture upon the gum water, which muſt be put into a trough, or ſome broad veſſel; then with a ſtick curl them, or draw them out in ſtreaks, to as much variety as may be done.

Having done this, hold your book or books cloſe together, and only dip the edges in on the top of the water, and colours, very lightly; which done, take them off, and the plain impreſſion of the colours in mixture will be upon the leaves; doing as well the ends as the front of the book in the like manner.

And after the ſame manner you may make marbled paper, by dipping it on the flat, as alſo linen cloth, &c.

MARBLED *China ware*, a name given by many to a ſpecies of porcelain, or China ware, which ſeems to be full of cemented flaws. It was called by the Chineſe, who were very fond of it, tſoutchi.

It is generally plain white, ſometimes blue, and has exactly the appearance of a piece of China, which had been firſt broken, and then all the pieces cemented in their places again, and covered with the original varniſh. The manner of preparing it is eaſy, and might be imitated with us. Inſtead of the common varniſh of the China ware, which is made of what they call the oil of ſtone, and oil of fern, mixed together, they cover this with a ſimple thing made only of a ſort of coarſe agates, calcined to a white powder, and ſeparated from the groſſer parts by means of water, after long grinding in mortars. When the powder has been thus prepared, it is left moiſt, or in form of a ſort of cream, with the laſt water that is ſuffered to remain in it; and this is uſed as the varniſh. Our cryſtal would ſerve fully as well as thoſe coarſe agates, and the method of preparation is perfectly eaſy.

MARBLING of books, is performed by bookbinders, by ſprinkling over the covers of books with black, by means of a black pencil, ſtruck gently againſt the finger, or on a ſtick held for that purpoſe. After the Marbling is finiſhed, the covers are glaired over with the whites of eggs well beaten, and afterwards glazed over with a poliſhing iron.

MARCASITE, a name uſed in a very vague ſenſe by many writers upon foſſils, but reſtrained by Dr. Hill to the name of a peculiar genus of foſſils. The characters of which are, that they are compound, inflammable, metallic bodies, naturally conſtituting whole ſtrata; of a ſolid and firm ſubſtance; of an obſcurely and irregularly foliaceous ſtructure, and of a bright glittering appearance; very freely and readily giving fire with ſteel; not fermenting with acid menſtruums; and, when put into the fire, yielding a deep blue flame; and, finally, calcining into a purple powder.

Though the natural diſpoſition of theſe bodies be to form whole ſtrata, and that they are moſt uſually found in this ſtate; yet they are at times found in looſe maſſes as many, even of the ſtones of ſtrata, at times are. They are ſubject alſo, by their frequent admixture with adventitious matter, the ores of metals, and other foſſil bodies, to ſuch various external appearances, that their varieties are almoſt innumerable, and moſt of them are very beautiful: But, though their accidental differences are ſo very numerous, the genuine ſpecies are very few, the naturaliſts allowing only three; there are, 1ſt, the bright ſilver-coloured Marcaſite; 2d, the bright gold-coloured Marcaſite; 3d,

the pale heavy dead white Marcaſite. The firſt ſpecies uſually conſtitutes ſtrata of great extent, and of about a foot in thickneſs; very often much leſs, but ſcarce ever much more.

It is compoſed of a number of foliaceous flakes, not regularly diſpoſed, but odly contorted and waved, and often folding round one another; though ſometimes this ſtructure is leſs diſtinct, and the whole ſeems run into one ſolid maſs. Its colour is extremely bright, very like ſilver, but more glittering. This is its common, and its more pure ſtate; but it is liable to a vaſt number of varieties. Sometimes it contains a large quantity of the ore of lead or tin; and very often a duſky brown ferrugineous matter is intermixed with it; at other times many of the angular and regularly figured phlogoniæ are immerſed in it, and ſeem to make a part of its very ſtructure; and, ſometimes where is has room, its conſtituent flakes riſe on its ſurface in ſeveral conjunct ſeries, and form a very elegant foliaceous top to it. Nor is this all the difference of appearance it puts on; for, very often, where there has not been a ſufficient quantity of it to form itſelf into any figure alone, it is found depoſited in ſpecks, or flat cakes, of a more or leſs complex, but always of a flaky ſtructure, on ſtones or ores of various kinds; and frequently, beſides its native ſilver, which it has, all the rainbow colours on its different parts as differently turned to the light.

The golden Marcaſite is a more beautiful ſubſtance than the former. It is of a leſs firm or compact ſtructure than the others, and is uſually found in very long, but very thin ſtrata, and is of an extremely bright and glittering appearance; and is ſometimes found in large and miſhapen nodules, or looſe maſſes. It is liable to all the accidental varieties that the former is, and in many of them makes a very fine appearance. The third, or dead white kind, is the hardeſt and heavieſt of all. It is in its more uſual and natural appearance of much leſs beauty than the former kinds; but is like them ſubject to various accidents, under ſome of which it makes a very gay and ſplendid appearance. It, like the reſt, ſometimes forms complete ſtrata, ſometimes detached nodules; but its moſt uſual appearance is in the horizontal cavities of other ſtrata; in theſe it often forms a ſort of baſtard ſtratum of many yards continuance, and frequently of very conſiderable thickneſs; for it almoſt always fills up the vacuity, and that ſo cloſely, as ſeldom to leave room for any foliaceous ſhoots at its ſurface, or protuberances at its edges; but forms a plain maſs, like that of a metal, melted and poured into the place. It is of the ſmoothest ſurface of all the Marcaſites, and is ſomewhat ſoft to the touch, and in colour reſembles tarniſhed pewter.

This is its common appearance; but it ſometimes ſhews itſelf

like the reſt in ſmall patches on the ſurface of ſtones, and is there often very beautifully foliated; it is liable alſo to all the accidents of the other kinds.

The Marcaſites are all found in great plenty in the Engliſh and German mines. Devonſhire and Cornwall afford vaſt quantities of them; and very beautiful ones are found in Derbyſhire. They often contain the ſeveral metals; but the quantity of ſulphur has yet baffled all the attempts, that have been made, to work them to advantage.

MARCH, is repreſented, in painting, &c. of a tawny complexion, and a fierce look; wearing upon his head a helmet, and leaning upon a ſpade; holding in his right hand Aries, and in his left almond bloſſoms and cions; and upon his arm a baſket of garden ſeeds.

IBM *John* MARIA *da Breſcia*, a Carmelite friar, uſed this mark. He, in the year 1502, engraved a virgin ſitting in the clouds, and underneath three ſaints of the order of the Carmelites. He had a brother called John Antonio da Breſcia, who marked his plates with the letters JO. AN BX. 1538.

The MARIGOLD *in painting*; firſt lay on maſticote, upon that gamboge, and ſhade with gamboge mingled with ſome vermilion. To finiſh, add gall-ſtone and a little carmine.

Let the green be verditer, ſhaded with iris.

The French MARIGOLD *to paint or colour*. Firſt lay on maſticote, and let the ſecond lay be gamboge; then gall-ſtone, mixed with gamboge, and finiſh with the laſt colour, a little biſtre being added to it, and a very little carmine, for the deepeſt ſhades.

The African MARIGOLD *to paint*, &c. Firſt lay on gamboge, and ſhade with the ſame, mixing with it a good deal of carmine, and a little gall-ſtone; but make an edging of gamboge about the leaves, very bright in the lights, and darker in the ſhades; ſhade the ſeed with biſtre.

Let the green both of the French and African be verditer, ſhaded with iris.

MARS, his pictures, ſays Macrobius, were adorned and beautified with ſun-beams, in as lively a manner as could be deviſed, with a fierce aſpect, terrible and wrathful; his eyes hollow and quick in their motion, his face all hairy, with long curled locks on his head, hanging down to his ſhoulders, of acoal-black colour; ſtanding and holding a ſpear in one hand, and a whip in the other.

2. Statius ſays, he was repreſented wearing on his head a bright ſhining helmet, ſo fiery, that it ſeemed as though it ſent forth flaſhes of lightning; armed with a golden breaſt-plate, on which were engraven fierce and ugly monſters; and his ſhield ſtained all over with blood, and enchaſed with deformed beaſts, drawn

drawn in a chariot by two horſes, Fury and Violence, driven by two ſurly charioteers, Wrath and Deſtruction; and he himſelf holding a ſpear in one hand, and a whip in the other.

3. He is alſo ſometimes repreſented on horſeback, and ſometimes in a chariot drawn with horſes called Fear and Horror, and ſome ſay with the figures of men called Fear and Violence.

Iſidorus relates, that the picture of Mars was painted with a naked breaſt.

By which is intimated, that men ought not to be timorous in war, but valiantly and boldly expoſe themſelves to hazards and dangers.

Statius relates, that the houſe of Mars was built in an obſcure corner of Thracia, made of ruſty black iron; that the porters, which kept the gates, were Horror and Madneſs; that within the houſe dwelt Fury, Wrath, Impiety, Fear, Treaſon, and Violence; and the governeſs of the houſe was Diſcord, who ſat on a royal throne, holding in one hand a bright ſword, and in the other a baſon full of human blood.

Arioſto deſcribes the court of Mars, as a place of horror and confuſion, ſaying, that in every part and corner of it were heard ſtrange echoes, fearful ſhrieks, threatenings, and diſmal cries; in the middle of this place was the image of Virtue, looking ſad and penſive, full of ſorrow, diſcontent, and melancholy, leaning her head on her arm; hard by her in a chair was ſeated Fury in triumph; and not far from her ſat Death with a bloody ſtern countenance, offering mens ſkulls in human blood upon an altar, conſecrated with coals of fire, fetched from many cities and towns, burnt and ruined by the tyranny of war.

MASSES, in painting, are large parts of a picture, containing the great lights and ſhadows: And thus, when it is almoſt dark, we ſee only the Maſſes of a picture, i. e. the places of the lights and ſhadows.

MATRASS, is a glaſs veſſel, uſed in chymical operations, called alſo a bolt-head. It is made in the form of a bottle, with a very long narrow neck. The Matraſs is luted with earth, when it is to be placed on a very hot fire; when it is required, it ſhould be ſtopped very cloſe; it is ſealed hermetically.

MATRICE, with dyers, is a term applied to the five ſimple colours, whence all the reſt are derived or compoſed.

Theſe are the black, white, blue, red, and fallow or root colour

MATRICES, with letter-founders, are thoſe ſmall pieces of copper or braſs, at one end of which are engraven dent-wiſe, or en creux, the ſeveral characters, or letters, uſed in the compoſing for the printing of books.

Each letter or character, and each virgula or point in a com-

poſition of ſentences, has its ſeveral Matrice, and of conſequence its ſeveral puncheon to ſtrike it.

Theſe Matrices are cut by the engravers on metal.

When any types are to be caſt, the Matrice is faſtened to the end of a mould, ſo diſpoſed, that when the metal is poured on it it may fall into the creux, or cavity of the Matrice, and take the figure and impreſſion of it.

MATRICES, with coiners, are pieces of ſteel, in form of dyes; on which the ſeveral figures, arms, characters, legends, &c. wherewith the ſpecies are to be ſtamped, are engraven.

The engraving is performed with ſeveral puncheons, which being formed in relievo, or prominent, when ſtruck on the metal, make an indented impreſſion, which the French call en creux.

MATTURINO, a ſcholar of Raphael, lived at Rome, excelled in hiſtory-painting, and died in the year 1527.

Franc MAZZUOLI called *Parmegiano*, was the firſt who practiſed the art of etching; born in the year 1504, ſcholar to his two uncles, lived at Rome and Parma, excelled in hiſtory and portraits; died in 1540, aged thirty-ſix years.

MAY, is repreſented, in painting, &c. with a ſweet and lovely aſpect, clad in a garment of white and green, embroidered with daffodils, hawthorn, and blue bottles; on his head a garland of white and red damaſk roſes, holding in one hand a lute, and a nightingale ſitting on the fore-finger of the other.

M. C. ſignifies Martin de Clif, or Clivenſis Auguſtanus.

M. D. VOS is put for Martin de Vos, a celebrated inventor for engravers.

The MEASURES *of a human body that are equal between themſelves.*

1. The ſpace between the chin and the throat-pit is equal to the diameter of the neck.

2. The circumference of the neck is equal to the diſtance of the throat-pit to the navel.

3. The diameter of the waiſt is equal to the diſtance between the knob of the throat and the top of the head, and that is equal to the length of the foot.

4. The ſpace between the eye-lids and the noſtrils is equal to that between the chin and the throat-bone.

5. The ſpace from the noſe to the chin is equal to that of the throat-bone to the throat-pit.

6. The diſtance from the hollow of the eye-brow to the center of the eye is equal to the prominency of the noſtrils, and the ſpace between the noſtrils, and the end of the upper lip.

7. The diſtance between the top of the nail of the fore-finger, and the joint next the palm or thumb, is equal to the diſtance between the ſaid joint and the wriſt.

8. The

8. The greater joint of the fore-finger is the height of the forehead.

9. The ſpace between that joint and the top of the nail is equal to the length of the noſe; from the tip to the arch above the eyes, where the forehead and the noſe is divided, to the two firſt joints of the middle finger, are equal to the ſpace between the noſe and the chin.

10. The firſt joint of the middle finger, whereon the nail grows, is the diſtance between the noſe and the mouth.

11. The ſecond joint anſwers to the firſt, which is equal to the chin.

12. The bigger joint of the thumb is equal to the length of the mouth.

13. The ſpace between the top of the chin, and the dint under the lower lip, is equal to the leſſer joint of the thumb.

14. The leaſt joint of each finger is double the length of the nail.

15. The ſpaces between the middle of the eye-brows, and the outward corner of the eyes, is equal to the ſpaces between the ſaid corners and the ears.

16. The height of the forehead, the length of the noſe, and diſtance of the noſe from the chin, are equal.

17. The breadth of the hand is equal to the breadth of the foot.

18. The length of the foot is equal to the meaſure round about the inſtep.

19. Twice the breadth of the hand is equal to th· length of it.

20. The arches of the eye-brows are equal to the arch of the upper lip, at the diviſion of the mouth.

21. The breadth on the noſe is the length of the eye, and are either of them equal to half the length of the noſe.

22. The navel is in the middle between the noſe and the knee.

23. The ſpace from the top of the ſhoulder to the elbow is equal to two faces, and from that to the wriſt one and a half.

24. The breadth of the body, at the broadeſt part of the ſhoulders, is two faces and a half, which is alſo equal to the diſtance between the elbow and the middle finger.

25. The breadth of the body, at the privities, is equal to two faces.

26. The thighs, at the thickeſt part near the privities, are the diſtance of two faces broad.

27. The thickeſt part of the leg is equal to the ſpace between the top of the forehead and the end of the noſe.

28. The breadth of the back, at the arm-pits, is equal to two faces, and ſo are the hips at the buttocks.

29. The

29. The length of the middle finger is equal to the ſpace between its laſt joint and the wriſt.

To take off impreſſion of MEDALS. A very eaſy and elegant way of taking impreſſions of Medals and coins, not generally known, is this: Melt a little iſing-glaſs glue, made with brandy, and pour it thinly over the Medal, ſo as to cover its whole ſurface; let it remain on for a day or two, till it be thoroughly dry and hardened; and then, taking it off, it will be fine, clear, and hard, as a piece of Muſcovy glaſs, and will have a very elegant impreſſion of the coin.

Sulphur is ſometimes uſed to take off impreſſions of Medals, coins, &c. the method is this: Having made a ledge of clay about the work, whoſe impreſſion is deſired, and carefully oiled the whole, gently pour brimſtone melted in a covered veſſel, to prevent its firing; upon the metal, about the edge of this mould, make a border of clay, as before, and lightly oil the internal ſurface of both; then gradually put into it, to the thickneſs of about a quarter of an inch, a mixture made up of calcined alabaſter and water, to the conſiſtence of ſtiff honey; this, ſoon growing hard, may be taken out of the mould, and gives figures of the coin or Medal.

We have another eaſy method of procuring a fine impreſſion or figure of Medals and coins: Take a perfect and ſharp impreſſion in the fineſt black ſealing wax of the coin or Medal you deſire, but cut away the wax round the edges of the impreſſion; then with a preparation of gum water, of the colour you would have the picture, ſpread the paint upon the wax impreſſion, with a fine hair pencil, obſerving to work it into all the ſinking or hollow places, theſe being the riſing parts of the Medal; and the colour muſt be carefully taken from the other parts with a wet finger; then take a piece of very thin poſt paper, a little longer than the Medal, and moiſten it quite through; place it on the wax impreſſion, and on the back of the paper lay three or four pieces of thin woollen cloth, or flannel, of about the ſame ſize. The impreſſion, with its coverings, ſhould be placed between two ſmooth iron plates, about two inches ſquare, and one tenth of an inch thick; theſe muſt be carefully put into a ſmall preſs made of two plates of iron, about five inches and an half long, one inch and a half wide, and half an inch in thickneſs, having a couple of long male ſcrews running through them, with a turning female ſcrew on each, to force the plates together; theſe, being brought evenly together by means of the ſcrews, will take off a true and fair picture of the Medal, which, if any deficiency ſhould appear, may eaſily be repaired with a hair pencil or pen, dipped in the colour made uſe of.

If a relievo only be deſired, nothing is neceſſary, but to take a piece

piece of white card or paiſtboard well ſoaked in water; then placing it on the wax mould without any colouring, and letting it remain in the preſs for a few minutes, a good figure will be obtained.

This method of taking off Medals, &c. is convenient, and ſeems much more ſo, than the ſeveral inventions uſually practiſed in ſulphur, plaiſter of Paris, paper, &c. wherein a mould muſt be formed either of clay, horn, plaiſter, or other materials, which require a good deal of time and trouble.

Some take impreſſions on paper from the Medals themſelves, by paſſing them through the rolling preſs, and colouring them afterwards; but this is not only more difficult, but does great injury to the Medals, by impairing the ſharpneſs of their moſt delicate and expreſſive ſtrokes; whereas wax does not hurt the fineſt Medal in the leaſt degree; and, though a brittle ſubſtance, it effectualy reſiſts the force of a downright preſſure.

Red ſeems the beſt colouring, and therefore black wax is directed to be uſed; but if the pictures are choſen in black and white, to reſemble copper-plates, the wax ſhould be red; for the wax and paint ought to be of different colours, in order to diſtinguiſh when the colour is laid on properly, or rightly cleared away.

M *Peter* MERCAUD uſed this mark.

MERCURY, is a fluid mineral matter, which perfectly reſembles ſilver in fuſion. It is popularly called quickſilver.

Authors are divided as to what claſs of foſſils to range Mercury under; ſome hold it to be a metal; others, a ſemi-metal; and others, an imperfect metal.

Boerhaave obſerves, that it is very improperly called a metal, inaſmuch as it has not all the characters of ſuch a body; nor ſcarce any thing in common with other metals, except weight and ſimilarity of parts; as, for example, it is neither diſſoluble by fire, malleable, nor fixed.

In effect it ſeems to conſtitute a peculiar claſs of foſſils; and is rather the mother or baſis of all metals, than a metal itſelf.

The characters or properties of Mercury are,

1. That of all bodies it is the heavieſt next to gold, and ſtill, by how much the purer it is, by ſo much it is the heavier; the ordinary proportion of Mercury to gold is that of 14 to 19; and, if any Mercury be found to be more than according to this ratio, it may ſafely be concluded that it has gold in it.

2. The ſecond character is, that it is the moſt fluid of all bodies; that is, its parts ſeparate and recede from each other by the ſmalleſt force; and of conſequence it is that of all bodies, whoſe parts cohere leaſt, and are the leaſt tenacious, and therefore of all others the leaſt ductile and malleable.

The

The parts of water do not divide ſo readily as thoſe of quick-ſilver; and the parts of oil much leſs.

3. The third property of Mercury is, that of all bodies it is diviſible into the minuteſt or ſmalleſt parts; thus, being expoſed to the fire, it reſolves into a fume, ſcarce perceivable to the eye.

4. The fourth character is, that it is extremely volatile, being convertible into fume, even by a ſand-heat.

The gilders are but too well acquainted with the vaporous quality of Mercury, which frequently renders them epileptic or paralytic, and ſometimes ſalivates them.

5. The fifth property is, that it eaſily enters, and intimately adheres to gold; but not ſo eaſily to other metals, with difficulty to copper, and not at all to iron.

6. The ſixth character is, that of all fluids it is the coldeſt and hotteſt, ſuppoſing the circumſtances the ſame; this property depends on the great weight of Mercury; for the heat and cold of all bodies are, cæteris paribus, as their weights.

Now Mercury being four times heavier than water, if both of them be expoſed in a winter's night to the ſame cold, the Mercury muſt be ſo much colder than water, as it is heavier.

So alſo, if they be both applied to the ſame degree of heat, while the water becomes warm, the Mercury will be hot enough to burn the hands.

7. The ſeventh property of Mercury is, that it is diſſoluble by almoſt all acids, and unites itſelf with them, at leaſt all foſſil acids.

Only vinegar does not diſſolve it; and hence we are furniſhed with a method of detecting the frauds of the druggiſts, &c. who make a practice of ſophiſticating quickſilver with lead.

Pound a little Mercury with vinegar in a mortar, and, if the vinegar grow ſweetiſh, it is a proof there is a mixture of lead in it.

If copper has been mixed with it, the Mercury will turn greeniſh or bluiſh; and, if there be no adulteration, the Mercury and vinegar will both remain as before.

8. The eighth property of Mercury is, that it is the moſt ſimple of all bodies, next after gold; and accordingly it is found the ſame in all its parts, as far as obſervation goes.

9. The ninth property of Mercury is, that it is not in any meaſure ſharp, for it ſhews no acrimony in the taſte, nor does it corrode any body; and, if a carcaſs were to be buried in quick-ſilver, it would there remain without being any way hurt.

MERCURY, is deſcribed by the ancients, as a beardleſs young man, having two ſmall wings fixed behind his ſhoulders and ears, his body almoſt all naked, excepting that a thin veil hangs down from his ſhoulders, which is wrapped round his body; he held a golden purſe in his right hand, and in his left a caduceus, or ſnaky ſtaff, viz. a ſlender wand, about which two ſnakes annodated

i. e.

i. e. twined in certain knots, their heads meeting together juſt at the top, as their tails do at the bottom.

Some, however, repreſented Mercury in the likeneſs of a very aged man, with his head almoſt bald, excepting that ſome few hairs remained on the ſides, ſhort and curled; of a grim, ſevere, and ſour aſpect; of a tawny complexion, an ancient hue; clad with a lion's ſkin, for an upper garment; holding in his right hand a large pole-ax, and, in his left hand, an iron bow, and a quiver of ſteel-headed arrows hanging at his back; to the end of his tongue were faſtened many ſmall chains of gold, at the end of which were tied multitudes of all ſorts of men, which he ſeemed to draw to him; looking continually backward, to behold the innumerable troops of people following him.

By this deſcription is ſignified the all-powerful and attractive virtue of eloquence; which, by his age, is underſtood to be found only in old, wiſe, and experienced men, as being more mature and perfect in them, than in thoſe of younger years.

Apuleius writes, that Mercury was a very youth, having very ſhort hair on his head, of an amber colour, and curled; clad only with a very thin veil of purple ſilk.

He is alſo drawn with long, curled, yellow hair, in a coat of flame colour, and with a pure white mantle trimmed with gold and ſilver; with a white beaver or hat, with white feathers; golden ſhoes, and a ſilver rod in his hand.

Martianus Capella, alſo, deſcribes him young, but of a ſtrong and well compoſed body, with certain young hairs of a yellowiſh colour, ſprouting out of his chin.

Among ſome of the Egyptians, he was depicted with a head like a dog, holding in his right hand a caduceus, and ſhaking a green bough of palm with his left hand.

By the dog's head was ſignified ſubtlety and craftineſs, no beaſt being accounted ſo ſubtle as a dog; by the ſnaky wand, the power of wiſdom and eloquence in producing peace, which is ſignified by the green palm branch.

Pauſanias relates, that Mercury was repreſented, in a certain province of Corinth, as a young man carrying a ram upon his ſhoulders: And that a ſtatue was brought from Arcadia to Rome, and erected in the temple of Jupiter Olympus, which had on its head a helmet of engraven ſteel, and a coat over his ſhoulder, holding under his arm the image of a ram.

MERCY, is repreſented, in painting, &c. as a lady ſitting upon a lion, holding in one hand a ſpear, and in the other an arrow, which ſhe ſeems to throw away.

Michael Angelo MERIGI *da Caravaggio*, born in the year 1669, ſcholar of Cavalier Gioſeppino, lived at Venice, Rome, and

and Malta; excelled in hiſtory and half figures: He died in the year 1609, aged 40 years.

MERMAN, } Are ſea creatures, frequently talked of, as be-
MERMAID, } ing ſuppoſed half human, and half a fiſh; and are repreſented by painters, &c. in the form of a man or woman from the navel upwards, and with the tail of a fiſh from thence downwards.

METALS, are ſimple foſſil bodies, which fuſe and become fluid by fire, and coagulate by cold, and harden into a ſolid maſs, capable of diſtending under the hammer.

A Metal is ſaid to be ſimple, as it may be affirmed of every the minuteſt particle of a Metal, e. gr. a grain of gold, that it is gold, or has all the properties of gold.

A Metal is fuſible by fire; that is, when expoſed to a great fire, it diſſolves into parts, which are eaſily moveable among themſelves, or are actually in motion.

A Metal is fixed, i. e. it bears the fire without flying off in vapours. Though Metals are fixed only to a certain degree; for, by the large burning-glaſſes of M. Tſchernhauſen and Villette, all Metals will readily evaporate.

Such are the proper characteriſtics of Metals, which are no ways applicable to any other bodies in nature; for a diamond, or other ſtone, though it be a ſimple body, yet is not fuſible in the fire, nor capable of being extended under the hammer; and the ſalt, being diſſoluble by fire, is not malleable, but will break under the hammer.

There are, indeed, certain woods, which yield, in ſome meaſure, to the hammer; but then they fall to duſt in the fire, and ſo of the reſt.

There are but ſix Metals found in all nature, viz. gold, ſilver, copper, tin, lead, and iron.

To theſe is uſually added a ſeventh Metal, viz. mercury, or quickſilver, but improperly, as it has not all the characters of a Metal, nor ſcarce any thing in common with the other Metals, except weight and ſimilarity of parts.

Thus, for example, it is neither diſſoluble by fire, malleable, nor fixed: And, in reality, it ſeems to conſtitute a peculiar claſs of foſſils, and is rather the mother or baſis of all Metals, than a Metal itſelf.

The common radical character of Metals is, that of all known bodies they are the heavieſt.

By the experiments made by Dr. Halley, the weight of gold to that of glaſs is determined to be as 7 to 1; and the weight of tin, the lighteſt of all Metals, to that of gold, as 7 to 19; which conſiderably ſurpaſſes the weight of all ſtones, marbles, gems,

gems, and other the moſt ſolid bodies, as appears from the tables of ſpecific gravities.

Nor is there any body in nature, but a Metal, that is one third of the weight of gold.

The Royal Society furniſh us with various experiments of this kind.

The weights of the ſeveral Metals and other ſolids they have examined hydroſtatically, by weighing them in air and water; and the weight by the fluids, by weighing an equal portion of each.

By ſuch experiments they find, that, taking the ſame weights of water and gold, the bulk or magnitude of the water is to that of gold, as 19636 to 1000; conſequently that the weight of gold is to water nearly as 19 to 1.

The ſpecific weight of the ſeveral Metals, by this means determined, ſtands thus:

Gold	19635	Iron	7852
Quickſilver	14019	Tin	7321
Lead	11341	Stone	2000
Silver	105135	Water	1000
Copper	8843	Air	$\frac{8}{27}$

The Cubic Inch of		*Ounces.*	*Drachms.*	*Grains.*
Gold	weighs	12	2	52
Quickſilver		8	6	8
Lead		7	3	30
Silver		6	5	28
Copper		5	6	36
Iron		5	1	24
Tin		4	6	17

To take away the brittleneſs of any METAL.

Firſt calcine the Metal, and put it under dung; and afterwards heat it red-hot at the fire, or melt it, and quench it often in aqua-vitæ often diſtilled; or uſe roſin or turpentine, or the oil of it; or wax, ſuet, euphorbium, myrrh, or artificial borax: For, if Metals be not malleable, unctuous bodies will oftentimes make them ſofter.

If either all theſe, or ſome of theſe, be made up with ſome moiſture into little cakes, and when the Metal yields to the fire, by blowing with the bellows, and ſome of them be caſt in, and be made thick like mud, or clear; then ſet the Metal to the fire, that it may be red-hot in burning coals; take it out, and quench it in them, and ſo let it remain for half an hour to drink in.

Or daub the Metal with dog's greaſe, and melt it with it; for that will take away much of the brittleneſs of it, and make it ſo that it may be hammered and wrought.

To colour METAL *like gold.*—Take ſal armoniac, white vitriol, rock ſalt, and verdigreaſe, of each a like quantity in fine powder; lay it upon the Metal; then put it into the fire for an hour, take it out, and quench it in urine, and the Metal will have the colour of gold.

To melt METALS *quickly.* Put in a layer or courſe of the powder of any Metal into a crucible; then lay upon it a layer of ſulphur, ſalt-petre, and ſaw-duſt, of each a like quantity, mixed together; put a coal of fire to it, and the Metal will immediately be in a maſs.

M *Joſeph Maria* METELLI, of Bologna, a famous and fantaſtical engraver of all kinds of ſubjects, uſed this mark.

MEZZO-TINTO, a particular kind of graving, done in the following manner:

1. Take a well-poliſhed copper-plate, and make it all over rough one way, with a ſort of engine particularly deſigned for this purpoſe: Then croſs it over with the engine again; and, if you ſee occaſion, croſs it over it the third time, till it be made rough alike, viz. ſo as, if it were to be printed, it would print black all over.

2. The ſhape or form of this engine, or inſtrument, is various, according to the fancy of the artiſt; thoſe that deſire them, may have them of ſeveral perſons in London, who profeſs and practiſe the arts of drawing, engraving, and etching.

3. When you have thus roughed the plate, take charcoal, black chalk, or black lead, to rub over the plate, and draw the deſign with white chalk upon the ſame; then take a ſharp ſtift, and trace out the outlines of the deſign, which you have drawn with white chalk.

4. Where you would have the light ſtrike the ſtrongeſt, take a burniſher, and burniſh that part of the plate as clean and ſmooth, as it was when it was firſt poliſhed.

5. Where you would have the light fainter, there you muſt poliſh it ſo much, and after this manner you muſt either increaſe the light in your deſign, making it either fainter or ſtronger, as the neceſſity of the work requires.

MEZZO-TINTO *prints* are, for back-painting upon glaſs, to be preferred to thoſe that are engraven; becauſe that the former, if done with a neat and careful hand, and on a good and fine-grounded print, can ſcarcely be diſtinguiſhed from limning; whereas, in thoſe that are engraven, all the ſtrokes of the graver are plainly viſible.

2. In

2. In chuſing your prints to work upon, obſerve the paper they are printed on; if it be too thick, or too much gummed, that may be diſcovered by wetting a corner of it with water, or your tongue; where, if it paſſes not through the paper preſently, it is not fit for the purpoſe; but a thin, ſpungy paper, is what you ſhould chuſe.

3. The glaſs you paint it on, ought not to be common window-glaſs, for that will ſpoil your work; but either true and thin ground, and well-poliſhed looking-glaſs, or a ſort of fine white glaſs, called Cock-hill glaſs.

Of laying MEZZO-TINTO *prints upon the glaſs.*

1. Having provided ſuch a glaſs of the ſame ſize as your picture, ſteep the print flat-ways in warm water for four hours, more or leſs, according to the thickneſs, thinneſs, or hardneſs of the paper; and then, with a thin knife or bruſh, the hairs of which will not come out, ſpread Venice turpentine very thin and even all over the glaſs: And, if the weather be cold, warm the glaſs at the fire, and dab it all over with your fingers, that there may not be the leaſt ſpeck of the glaſs uncovered with turpentine.

2. Then take the print out of the water, and lay it on a table ſmooth, upon a clean napkin or ſheet of paper, or between two papers, to dry out all the ſuperfluous water.

3. When you have done this, lay the print upon the glaſs by degrees, beginning at one end, and ſtroking outwards that part which is juſt faſtened to the glaſs, that no wind or water may lie betwixt that and the glaſs, which will cauſe bliſters, and which you muſt always be very careful to ſtroke out.

4. If you perceive you have not laid the print on the glaſs exactly even, then, by warming the fore ſide of the glaſs before the fire, it will ſo ſoften and thin the turpentine, that you may, with care and gentleneſs, take it off again, and lay it on again immediately, not ſuffering the print to dry.

5. Your print being laid on the glaſs exactly, you muſt proceed to rubbing it with your finger, to rub off all the thickneſs of the paper, which will roll off in little rolls, till nothing of it is left upon the glaſs but a thin film like a cobweb, that is faſt ſtuck to the glaſs by the turpentine; but great care is to be taken in rubbing, that you do not rub any holes in the print, eſpecially in the lights, which are the moſt tender parts.

6. If your picture be large, ſo that ſome part of the paper ſhould grow dry, while you are rubbing the other, you ſhould, with a little water on your finger, wet them now and then, as you ſee occaſion, to keep them moiſt, for the paper will not rub when grown dry.

7. When you have rubbed or peeled it all over, ſo long as till you perceive the print appear tranſparent on the backſide;

then ſet it by to dry for two hours; after which, varniſh it over with maſtich varniſh, or turpentine varniſh, four or five times, or ſo often, till you can ſee clearly through it; and, after twenty-four hours, you may proceed to painting it.

To paint MEZZO-TINTO *prints.*

Whether in landſcape, or other prints, the firſt thing you have to do, is to glaze all thoſe places which require it.

But the beſt way is to work ſitting, not ſtanding, becauſe you will be able to move your hand and the pencil with the more ſteadineſs.

And it will be proper to have a table-eaſel to ſet your glaſs upon, almoſt like a reading-deſk, excepting that there is a pannel or back-board for a book. The painting-deſk muſt be all open, only with three or four wires to keep the picture from falling through, and a narrow ledge at the bottom for it to ſtand upon, and little holes made equally diſtant on both ſides of it, as in painters eaſels, that by pegs or pins, and a ledge laid upon them, you may raiſe the picture higher or lower, as beſt agrees with your conveniency.

It will alſo be beſt to lay a ſheet of white paper behind the picture on the table, and you will find it better to your purpoſe than if placed againſt the window.

If you would have your glazing to lie thin, and to dry quickly, mix varniſh when you lay it on the picture, and in three or four hours time they will be fit for receiving other colours.

And, in landſcapes, you ſhould firſt glaze the neareſt and great trees, grounding them well with brown pink; but, if you would have them greener, add diſtilled verdigreaſe.

Thoſe trees that you would have of a lively and beautiful, as alſo leaves and woods, muſt be glazed with Dutch pink and diſtilled verdigreaſe; but the trees farther off with verdigreaſe alone.

Hills, mountains, and trees, at the greateſt diſtance of all, are to be glazed with fine ſmalt, a little lake, and verdigreaſe, all thinly mixed with varniſh.

For the ſky, uſe ultramarine, or, for want of that, fine ſmalt; mix it thin with varniſh, and glaze it over two or three times with a clean large pencil, and a very quick ſtroke; for, if you are tedious, it will dry ſo faſt that you cannot poſſibly lay it even.

If your landſcapes are furniſhed with figures, buildings, rocks, ruins, &c. they require to be finiſhed before any thing elſe is done.

The mixtures of colours for theſe things conſiſt chiefly of blacks, whites, and yellows, with ſometimes a little red; but the mixture, compoſition, and proportions of them, muſt always be left to the judgment and experience of the artiſt, with this conſideration, that all the colours for this kind of painting ought to be very light.

To finiſh the ground, trees, and ſky, with the reſt of the picture, begin, as before, with the neareſt or largeſt trees; and, with yellow, pink, and white, paint over the lighteſt leaves; but, of the darker colour of pink, and a little ſmalt, go finely over the darkeſt and outward leaves, with a ſmall pencil dipped in varniſh.

Thoſe trees that you would have beautiful, paint with a mixture of yellow maſticote, white, and verdigreaſe; the darker parts with pink, verdigreaſe, and white; as alſo thoſe trees, which you glazed with verdigreaſe only, they being mixed very light with white.

But, to finiſh the ſky and foreſight, if any clouds appear, touch them with varniſh and light colours, made of white, yellow oker, and lake; and with theſe likewiſe touch the lighteſt part of hills and towns at the remoteſt diſtances: Alſo mix ſmalt and white, as light as you can, to paint over the ſky; and to theſe add a tincture of lake, to ſhadow over the darkeſt clouds, making all your colours to lie thin and even.

If you would have the picture look more lively, ſet it againſt the light, or on the eaſel; and, though it is painted all over, yet you may perceive the lights and ſhadows through it; but, if not, what was before painted will direct you; your ſky and foreſight then are to be limned with the ſame; but lighter colours than the former, and every part beſides reſpectively.

To varniſh theſe prints. Take the beſt white varniſh, ſee VARNISH, and maſtich varniſh, of each alike; mix them together, and, with a fine camels-hair bruſh, varniſh the picture over four or five times carefully before the fire, that the varniſh may not be chilled, and you will find it to have a very good and firm gloſs.

But, if you would poliſh it after varniſhing, then you muſt uſe only the beſt white varniſh, without any maſtich varniſh mixed with it; and waſh the print or picture over with it five or ſix times, after the manner that is done in japanning; and ſet the picture by for four or five days to dry, and then poliſh it with water and tripoli, and at laſt clear it up as you do white japan.

M. G. ſtands for Matthew Greuter, engraver; born in Argentina, anno 1566.

MICARINO, an engraver in the Gothic manner, uſed this mark.

M. *inv.*
M. *p. & ſc.* } Are all different marks of Claudius
Mellan. } Mellan of Paris.
Mel. ſc. Roma, 1633.

MI. AG. FLO. ſignifies Michael Angelo of Florence, i. e. Buonoroti.

MINES, are places under ground, where metals, minerals, or precious ſtones are found.

Therefore, as the matter dug out of Mines is various, the Mines themſelves acquire various denominations; as gold Mines, ſilver Mines, copper Mines, iron Mines, diamond Mines, ſalt Mines, Mines of antimony, of alum, &c. As for Mines of gold and ſilver, the richeſt and moſt celebrated are thoſe of Peru and Chili in America; iron Mines are more abundant in France than elſewhere; copper Mines are found chiefly in Sweden and Denmark; tin Mines abound moſt in England; quickſilver Mines in Hungary and Spain; diamond Mines in Golconda; ſalt Mines in Poland.

Metallic Mines are chiefly found in mountains, though the reaſon thereof does not appear.

They diſcover that there is a Mine in a mountain by the marcaſite or mineral ſtones falling from it; by the mineral taſte of the waters; by the quality of the exhalations raiſed from it; and by the difference between the earth over the Mines, and that of the neighbouring parts, in the cold time of ſpring and autumn; the froſt lying on the adjacent places when it thaws about the Mines.

To which may be added, that the ground's producing but little graſs, and that ſmall, pale, and colourleſs, is an indication of a Mine.

MINIATURE. } The firſt name comes from the Latin word
MIGNATURE. } minium, red lead, that being a colour much uſed in that kind of painting: The ſecond is French, and is ſo called from mignon, fine, pretty, on account of its ſmallneſs and delicacy.

Miniature is a delicate kind of painting, conſiſting of little points or dots inſtead of lines; uſually done on vellum with very thin ſimple water colours. It is diſtinguiſhed from other kinds of painting by the ſmallneſs and delicacy of its figures, the weakneſs of the colours, the faintneſs of the colouring, and in that it requires to be viewed very near.

Thoſe colours that have the leaſt body, are the beſt and moſt commodious for painting in miniature; as carmine, ultramarine, fine lakes, and greens made of the juices of ſeveral kinds of herbs and flowers.

Painting in Miniature is the niceſt and moſt tedious of all others, being performed wholly with the point of the pencil.

There are ſome painters, which never uſe any white colour in Miniature, but make the ground of the vellum ſerve to raiſe their figures; in which caſe the lights appear bright in proportion to the depth and ſtrength of the colours of the figures.

Others, before they go to work, give the vellum a light waſh with white lead well prepared and purified.

When the colours are laid on flat without dotting, though the

figures be ſmall, and the ground either vellum or paper, it is not called Miniature, but waſhing.

The colours for Miniature may be mixed up with water of gum arabic, or gum tragacanth.

Though, in treating of other methods of painting, in divers places of theſe volumes, much has been ſaid that may be applicable to this method of painting in Miniature; yet I ſhall nevertheleſs ſpecify the characteriſtics of this kind of painting in particular.

1. It is in its nature more delicate than any of the other ſorts.
2. It requires to be ſeen near at hand.
3. It cannot well be executed but in ſmall.
4. It is performed on vellum or ivory.
5. The colours are moiſtened with gum water only.

To ſucceed well in your attempts this way, you ſhould know how to draw very well; but, as moſt who concern themſelves in this art are but ſeldom ſkilled in drawing, yet would have the pleaſure of painting without the trouble of learning to draw, in which little progreſs can be made, without time and much practice, ſome contrivances have been found to ſupply the defect in this point, by which a perſon is enabled to draw without knowing how to do it without them.

The firſt is called calking. To do which, you muſt blacken the backſide of the print or drawing you deſign to copy; and, having lightly bruſhed off the duſty particles, to prevent their adhering to, and fouling the clean vellum you deſign to uſe, lay your original on the vellum, and faſten it thereto with pins; or if, inſtead of the backſide of the print or drawing itſelf, you blacken only one ſide of a fair piece of paper, and put this paper between the print or drawing and your clean vellum; then with a blunted pin or needle trace out the principal ſtrokes of the print or drawing, the outlines and folds of the draperies, and whatever elſe need to be diſtinguiſhed; bearing upon the pin or needle hard enough to leave the traces thereof on the vellum beneath.

Reduction is another way, proper for thoſe who are not ſkilled in drawing, yet notwithſtanding would copy a picture, or other piece that cannot be calked. It is done thus: You muſt divide the whole piece into many ſmall and equal ſquares, which you are to make with ſmall-coal if the piece be light, and with chalk if the piece be dark, that, in either caſe, your ſquares may be the more conſpicuous; then you muſt make the ſame number of ſquares, and of the ſame bigneſs, upon paper to draw upon; for, if you undertook to do it at once upon vellum, as you might fail in the firſt attempt, you would run the hazard of ſpoiling your vellum by falſe ſtrokes; but, the whole being duly adjuſted upon paper, we calk it upon vellum, as is ſaid above. The original

ginal and the paper being thus marked out, obſerve what is contained within each ſquare of the piece you would copy, as an head, an arm, a hand, and ſo on, and where each is placed; all which you muſt punctually follow on your paper; and, having thus obtained the ſituation of each part, join the whole together. After this manner you may enlarge, as well as diminiſh any piece you pleaſe, only by making the ſquares on the paper larger than thoſe on the original, or ſmaller, obſerving always that they are the ſame in number.

To copy a picture, or any thing elſe of the ſame ſize, take oiled paper dried, or gold-beaters ſkin; either of theſe we lay upon the piece, through which you may ſee the ſtrokes, which trace out with a crayon or pencil: Then take it off, and make it faſt to vellum or paper, and, holding it up to the light, trace out what has been copied upon the oiled paper or ſkin, either with a crayon or a ſilver pin.

By the help of a window, or a glaſs held up to the light, are copied all ſorts of prints, deſigns, and other pieces, upon paper or vellum, by fixing them to the paper or vellum you intend to draw upon. This is an eaſy and good contrivance for copying of the ſame ſize.

If you would make the piece look a contrary way, turn the printed or drawn ſide of the original towards the glaſs, and faſten the paper or vellum to the backſide of it.

There is alſo a good way to take an exact copy of a picture which is in oil colours: Which is, with a pencil and ſome lake mixed up with oil, to trace out all the principal ſtrokes of the picture, and applying thereto a paper of the ſame ſize; then paſs your hand over it, and the ſtrokes of the lake will take the paper, and appear thereon, which you may calk as before. Be mindful to clean the picture with the crumb of bread before the lake dries.

Alſo, to the ſame end, uſe coal-duſt, contained in a piece of fine linen, wherewith pounce the piece you would copy, having firſt pricked the principal ſtrokes of it, and faſtened a piece of vellum or paper to the wrong ſide of it.

But, for one who has no hand at drawing, there is a more ſure and eaſy way than any before-mentioned, by the help of a mathematical inſtrument, or compaſs, as it is ſometimes called, which is commonly compoſed of ten pieces of wood like rulers, about the ſixth of an inch thick, and half an inch broad; as for their length, it may be a foot, more or leſs, according to the ſize of the piece you would copy. But, that you may not miſtake, here follows a repreſentation of it. See plate VII, fig. 1.

The board A muſt be deal, covered with a cloth of ſome ſort or other, for the more convenient faſtening of the piece you

Fig. 1.

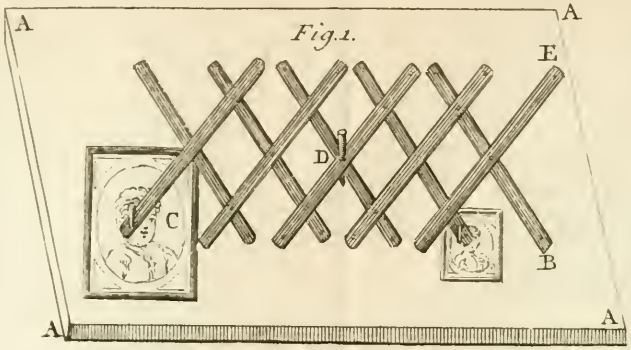
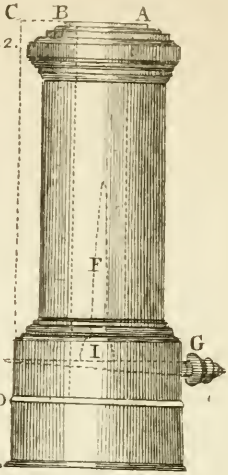


Fig. 2.



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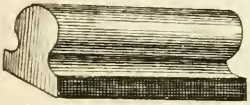


Fig. 3.

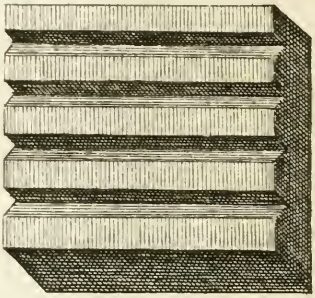


Fig. 5.

Fig. 6.

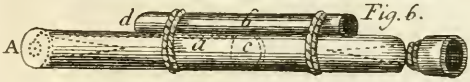


Fig. 7.

Fig. 9.

Fig. 8.

Fig. 10.

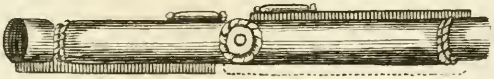


Fig. 11.

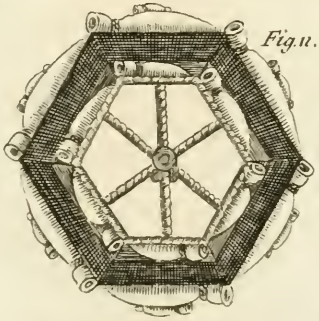


Fig. 12.

you would draw, and what you would draw upon: Then plant the compaſs with a large pin run through the foot B. If you would draw in ſmall, you muſt place the original at the firſt foot C, and the paper or vellum you would draw upon, near to the foot B, removing it to a greater or leſs diſtance, according as you would have your piece greater or ſmaller.

To draw in great from ſmall, you need only ſhift your copy to the place of your original, putting the former at C, and the latter at B; and in each caſe you muſt put a crayon or a ſilver pin into the foot over your vellum, and a pin ſomewhat blunted into the foot over your original, with which you are to follow all the lines, while you bear with your other hand gently upon the pin or crayon on your vellum. If one or the other be well fitted in the foot, you need not bear thereon at all.

You may draw alſo of equal ſize, but to do that you muſt plant your compaſs in a different manner; it muſt be fixed with a pin or axis, run through the center D; and the original and the copy muſt be at an equal diſtance from the center. In a word, you may draw ſeveral copies at a time, and each of a different ſize, or equal to each other, juſt as you pleaſe.

Theſe are all the helps needful to be known by thoſe who are unſkilled in drawing. When your piece is ſketched out upon the vellum, you muſt, with a pencil of thin carmine, run over all the ſtrokes, that they may not be defaced in working. This done, clean your vellum with crumb of bread.

Your vellum muſt be glued to a copper plate, or to a piece of thin board exactly of the ſame ſize with your intended piece, to ſtretch it upon; but your vellum muſt be a finger's breadth larger every way than what you glue it to, for the way is to lap it round behind, and there glue it, not offering to lay any glue under your paint, not only for fear of ſome deformity, but alſo becauſe of the impoſſibility of taking it off again. But, firſt of all, you muſt moiſten the fair ſide of the vellum with a piece of fine wet linen, and put a piece of white paper to the backſide of it, and ſo apply it to the plate or piece of board, and, ſtretching it thereon equally in all directions, glue it as juſt now directed.

The colours uſed in MINIATURE *painting are*, carmine, ultramarine, lake of all ſorts, vermilion, black lead, brown red, maſticote pale, maſticote yellow, indigo, ivory-black, lamp-black, Spaniſh brown, umber, gall-ſtone, brown oker, French pink, orpiment, gamboge, Naples yellow, bladder green, verditer, ſea green, German aſhes, flake white, and white lead.

As all terrene colours, and other groſs ſubſtances, are too coarſe for fine works, how well ſoever they may be ground, by reaſon of a kind of ſand which ſtill remains; the fineſt particles may be ſeparated, by tempering your colour in a cup of fair water. Hav-

ing ſtirred it well with your finger, and the whole being thoroughly ſoaked, let it ſubſide for a while, and then pour it off, by inclination, into another veſſel, and what you pour off will be the fineſt particles, which you muſt afterwards ſet to dry: The colour, thus prepared, muſt, when you uſe it, be tempered with gum water, as ſhall hereafter be directed. This is a good contrivance, and perfectly calculated for the delicacy of ſmall works.

Greens, blacks, greys, and yellows; theſe colours being mixed with a little of the gall of ox, carp, or eel, eſpecially of this laſt, it will give them a luſtre and vivacity not natural to them. You muſt take the gall of eels, when they are ſkinned, and hang them by a nail to dry; and, when you uſe any, you muſt ſteep it in brandy, and mingle ſome of it with the colour already tempered. It will cauſe the colour to take the vellum more ſtrongly, which it will not eaſily do when the vellum is greaſy; beſides, the gall prevents its peeling.

Yellow oker, brown red, umber, and ultramarine; theſe are colours which purify by fire, all others blacken thereby; but, if you burn the abovenamed colours with a ſtrong fire, they change, for the brown red turns yellow, the yellow oker turns red, the umber reddens alſo, and white lead becomes of a lemon colour, and is called maſticote. Obſerve, that the yellow oker, being burnt, becomes ſofter and kinder by far than before, and more ſo than the pure brown red; and, reciprocally, the brown red, being burnt, becomes more ſoft and agreeable than the pure yellow oker; they are both very good. The fineſt and moſt pure ultramarine, burnt in a red-hot ſhovel, becomes much more brilliant than before; but, refined after this manner, it diminiſhes, and becomes coarſer, and harder to work with in Miniature.

Theſe colours are tempered, in ſea-ſhells, or in ſmall ivory cups made on purpoſe, with water, in which hath been before diſſolved gum arabic and ſugar-candy; for example, in a good glaſs of water put the quantity of your thumb of gum arabic, and half that quantity of ſugar-candy. This laſt prevents the colours from ſcaling when applied, which they commonly do without it, or when the vellum is greaſy.

This gum water muſt be kept in a bottle, always ſtopped cloſe; and never dip a coloured pencil into it, but take it out with a quill, or ſome ſuch thing.

Some of this water you muſt pour into a ſhell, together with the colour you uſe, and temper them with your finger, till the whole be very fine. If you find your colour too hard, leave it to ſoften in the ſhell before you temper it; then ſet it to dry, and ſo do by all, except the iris green, and bladder green, and gamboge, which muſt be tempered with water only; but ultramarine, lake, and Spaniſh brown, muſt be more gummed than other colours.

If

If you uſe ſea-ſhells, you muſt firſt ſoak them for two or three days in water, then ſcower them well in hot water, to clear them of a certain ſalt, which ſpoils the colours, if not waſhed away.

To underſtand when your colours are ſufficiently gummed, you need only make a ſtroke with your tempered colours upon your hand, which will immediately dry; if they break and ſcale, they are too much gummed; and, if they rub out by paſſing your finger acroſs them, they are not gummed enough. Again, if you lay your colours upon vellum, and upon trial find that the colours come off upon your finger like duſt, it ſhews they are not enough gummed, and therefore you muſt put more gum into the water you uſe; take care alſo, that you put not in too much, for that will have a hard and a dry effect, your colours will be glutinous and ſhining; thus, the more they are gummed, the darker they will be; and, if you would have a greater body to a colour than it naturally has, you need only gum it well.

You muſt have a ſmooth ivory pallet, of the ſize of your hand, upon which you muſt diſtribute your colours.

Good pencils are of great importance to the work; to chuſe which, wet them a little, and twirl them on your finger; if they keep their point, they are good, but, if they break into many points of different lengths, they are good for nothing, particularly for ſtippling; this is a term in Miniature for making ſmall points or dots, but above all for carnations; when they are too ſharp-pointed, with only four or five hairs ſticking out beyond the reſt, you muſt blunt them carefully with a pair of ſciſſors. It will be proper to have them of two or three ſizes; the largeſt may ſerve for your grounds, the middling for drawing and colouring, and the leaſt for finiſhing.

To keep your pencil to a good point, you muſt often put it between your lips, and preſs it, and moiſten it with your tongue, though you have juſt taken up colour with it; for, if you have taken up too much, you by this means diminiſh it, and correct your error. You need not fear any harm from ſo doing; all the Miniature colours, except orpiment, which is a poiſon, have nothing diſpleaſing to the taſte, or noxious in themſelves, when prepared for uſe. You muſt be careful to repeat this very often when you are ſtippling or finiſhing, particularly carnations, that your ſtrokes may be neat and clear. As for draperies and other things, whether in the drawing, colouring, or finiſhing of them, you need not be ſo nice; in this caſe, it will be ſufficient if you make your point upon the edge or rim of your ſhell, or upon the paper you reſt on when you are at work.

To work as you ought, you ſhould be in a room that has but one window, which you muſt place yourſelf very near to, with a table

table and a desk almost as high as the window, and so fix yourself that the light may always strike in on the left hand of you.

When you would lay on a colour equally strong every-where, as a ground, for example; you must make your mixtures in shells, and take care that you have enough for that purpose; for, if they fall short, you will be put to it to prepare them of exactly the same degrees of light or shade.

Having spoke of vellum, pencils, and colours, I shall next shew how they are to be used. First of all, if you would paint flesh, or drapery, or aught else, you must begin by sketching or drawing with large, bold, yet clear strokes, like those who paint in oil: Your lights must, at first, be something brighter, and your shades not quite so dark as is required for finishing; because in stippling thereon you strengthen the colour, which, if too dark at first, would in the finishing become too deep.

There are several ways of stippling, or shading, as it may be also called; every painter has his manner; some do it with round points, others make them longish, others again hatch with fine strokes crossing each other in all directions, till the whole appears as if stippled or wrought with points; this last method is the best, boldest, and soonest perfected, wherefore I advise all painters in Miniature to practise it, and to accustom themselves betimes to be rich, mellow, and soft in their work; that is, that the points may be lost in the ground they are wrought upon, and appear but just enough to evince that the piece is stippled. Hard and dry is the reverse of this manner of working, which proceeds from stippling with a colour too dark for the ground, and too dry a pencil, which gives the work a rude cast or favour.

Endeavour also to drown your colours into each other, that no line of separation may be seen between them; and soften your strokes with the colours on each hand of them, so as to be equally blended with and confounded into each.

When your pieces are finished, heightening them a little has a fine effect; that is, strengthening the lights with touches of a paler colour than at first, which must be softened away into the rest.

For the method of painting different objects in Miniature, see the proper articles of each.

MINIUM, or *red lead*, is as heavy and strong a colour as most we have; but, when prepared, is the most delightful one; that is, when it is well washed and cleansed of its more weighty parts, which cause it to turn black.

Mr. Boyle directs the preparing or cleansing it as follows: Put four ounces of it in a quart of rain water; then stir it and pour off the water immediately, and let it settle to the bottom of every cup or glass you pour it into; then pour off that water, and

and in a day's time you will have the colour dry, and as fine as you can deſire; then put a little gum arabic into each glaſs or cup, and as much water as will moiſten each of them.

Any of theſe may be afterwards uſed with gum water; but, if the gum you put in at firſt makes it ſtrong enough to glaze it, then you need add to it only common water; and, according as your colour is leſs or more gummed, uſe leſs or more gum water; for of itſelf it is a dead colour.

When you uſe this colour, touch it gently on the yellow mentioned, made of yellow berries, into the light ſide, and, if it wants a ſhade, you may put a little vermilion upon it; but vermilion is too heavy to paint with, when you would illuminate prints, becauſe it hides the ſhades of the engraving; though ſometimes they had better be hidden than appear.

Some generally ſhade this minium or red lead with carmine, which gives it a fine effect, and renders it equal to the brighteſt red flower that is to be ſeen, leaving ſtill the lights uncoloured, only daſhing a little way into the lights with the Minium.

When the carmine has ſhaded the Minium or red lead, it may be ſhaded again with lake in the ſtrongeſt part, to bring it to a deeper red.

MIRROIRS, } in catoptrics, is a name given to all poliſhed
MIRROURS, } bodies, which are impervious to the rays of light, and which conſequently reflect it equally; but, in the more confined ſenſe of the word, it is peculiarly uſed to ſignify plain or ſmooth ſurfaces of glaſs, ſilvered on the backſide, which exhibit the images of objects oppoſed to them.

The doctrine of MIRROURS. 1. Light, reflected from any Mirrour or looking-glaſs, makes the angle of incidence equal to that of reflection.

Hence a ray of light, falling perpendicularly on the ſurface of a Mirrour or looking-glaſs, will be reflected back upon itſelf, as is found by experience it actually does.

Therefore, from the ſame point of a Mirrour, there cannot be ſeveral rays reflected to the ſame point, nor can the ray be reflected into two or more points.

2. From every point of a Mirrour are reflected rays thrown on it from every point of a radiant object. Since then rays, coming from different parts of the ſame object, and ſtriking on the ſame point of the object, cannot be reflected back to the ſame point; the rays which flow from different points of the ſame radiating object are again ſeparated after reflection, ſo that each point ſhews whence it came.

Hence it is, that the rays reflected from Mirrours exhibit the objects to view.

Hence alſo it appears, that rough uneven bodies muſt reflect the

the light in ſuch manner, as that rays, coming from different points, will be blended or thrown confuſedly together.

Mirrours are either plain, concave, convex, &c.

Plain Mirrours are ſuch as have flat ſurfaces, as looking-glaſſes.

The laws and phænomena of plain Mirrours.

I. In a plain Mirrour every point of an object is ſeen in the interſection of the cathetus of incidence with the reflected ray. Hence,

1. As all the reflected rays meet with the cathetus of incidence, by whatever reflected rays the radiating point be ſeen, it will ſtill appear in the ſame place: And, conſequently, any number of perſons, viewing the ſame object, in the ſame Mirrour or looking-laſs, will all ſee it in the ſame place behind the Mirrour. And hence it is, that the ſame object has only one image; and that we do not ſee it double with both eyes.

2. The diſtance of the image from the eye is compounded of the ray of incidence and the reflected ray; and the object radiates reflectedly in the ſame manner, as it would do directly, were it removed into the place of the image.

II. The image of a radiant point appears juſt ſo far behind a plain Mirrour as the radiant point is before it. Hence, 1. If a Mirrour be placed horizontal, the radiating point will ſeem ſo much below the horizon as it is really elevated above it: And, conſequently, erect objects will appear as if inverted; and, therefore, men, ſtanding on their feet, will appear as if ſtanding on their heads.

Or if the Mirrour be faſtened to the cieling of a room, parallel to the horizon, objects on the floor will appear above the cieling, as much as they are really below it; and that upſide down.

III. In a plain Mirrour, the images are perfectly ſimilar and equal to the objects; and hence their uſe, as looking-glaſſes.

IV. In a plain Mirrour, things on the right-hand appear as on the left, and thoſe on the left as on the right.

Hence alſo is produced a method of meaſuring any height that is inacceſſible by means of a plain Mirrour.

Thus, a Mirrour being placed horizontally on the ground, retire from it, till ſuch time as the top of a ſteeple, tree, or any other high object, may be ſeen in it, and then meaſure the height of the eye, the diſtance of the ſtation from the point of reflection, and the diſtance of the foot of the ſteeple, &c. from the ſame, and then find a fourth proportional to theſe three, and it will be the height ſought.

V. If a plain Mirrour be inclined to the horizon in an angle of forty-five degrees, an object, which is perpendicular to it, will appear parallel, and an horizontal object perpendicular.

And hence, the eye being placed beneath the Mirrour, the earth

earth will appear perpendicularly over it; or, if it be placed over it, the earth will appear perpendicularly under it.

Hence alſo a globe, deſcending down a plane a little inclined, may, by means of a Mirrour, be exhibited or ſhewn, as if mounting up a vertical plane, to the great ſurpriſe of ſuch as are unacquainted with catoptrics.

And hence is a method, by which a perſon may repreſent himſelf as if flying.

For a Mirrour or looking-glaſs inclined to the horizon, under an angle of forty-five degrees, it will repreſent vertical objects as if horizontal. Conſequently, a large looking-glaſs being ſo poſited, as you advance toward it, you will ſeem to move horizontally; and nothing will be wanting to the appearance of flying but to ſtrike out the arms and legs.

But this is to be obſerved, that, as the floor is elevated along with you, your feet will ſtill be ſeen to walk, as along a vertical plane; therefore, to deceive the eye intirely, it muſt be kept from the feet.

VI. If the object be parallel to the looking-glaſs, and be equally diſtant from it, with the eye, the reflecting line will be half the length of the object.

And hence, to be able to ſee the whole body in a looking-glaſs, its height and breadth muſt be half your height and breadth; and, conſequently, the height and breadth of any object to be ſeen in a looking-glaſs or Mirrour being given, the height and breadth of the Mirrour, in which the whole object will appear, at the ſame diſtance with the eye, is alſo given.

Hence alſo, as the length and breadth of the reflecting part of the looking-glaſs are ſub-duple of thoſe of the object to be reflected; the reflecting part of the looking-glaſs is to the ſurface reflected in a ſub-quadruple ratio.

Conſequently, the reflecting portion being a conſtant quantity, if in any place you ſee the whole body in a looking-glaſs, you will ſee it in every other place, whether you approach nearer, or recede farther from it.

VII. If ſeveral looking-glaſſes, or ſeveral fragments, or pieces of a looking-glaſs, be all diſpoſed in the ſame plane, they will only exhibit an object once.

VIII. If two looking-glaſſes be joined at an angle, the eye placed within that angle will ſee the image of an object, placed within the ſame, as often repeated as there may be catheti, or ſides, drawn, determining the places of the images, and terminated without the angle.

Hence as the more catheti, terminated without the angle, may be drawn, as the angle is more acute; the acuter the angle, the more numerous the images.

Further

Further, if the looking-glaſſes be placed upright, and ſo contracted; or if you retire from them, or approach to them, till the images reflected by them coaleſce or run into one; they will appear monſtrouſly diſtorted.

Thus, if they be at an angle ſomething greater than a right one, you will ſee it with only one eye; if the angle be leſs than a right one, you will ſee three eyes, two noſes, two mouths, &c.

At an angle ſtill leſs, the body will have two heads.

At an angle ſomething greater than a right one, at the diſtance of four feet, the body will be headleſs, &c.

And if the glaſſes be placed the one parallel to the horizon, and the other inclined to it or declined from it, it is eaſy to perceive that the image will be ſtill more romantic.

Thus, one being declined from the horizon to an angle of 144 degrees, and the other inclined to it; a man ſees himſelf ſtanding with his head to another's feet.

Hence it appears how Mirrours or looking-glaſſes may be managed in gardens, &c. ſo as to convert the images of thoſe near them into monſters of various kinds: And, ſince glaſs Mirrours will reflect the image of a lucid object twice or thrice, if a candle, &c. be placed between the Mirrours, it will be multiplied an infinite number of times.

Wolfius relates, that an artiſt of Dreſden in Saxony made burning Mirrours of wood, larger than thoſe of either M. Schirnhaus or Villette, which had effects at leaſt equal to any of them.

And we are inſtructed by Traberus how to make burning Mirrours of leaf gold, viz. by turning a concave, and laying the inſide over equally with pitch, and covering that with ſquare pieces, two or three fingers broad, faſtening them on, if need be, by the fire.

He tells us, that very large Mirrours may be made of thirty, forty, or more concave pieces, artfully joined in a turned wooden diſh or ſkuttle, the effects of which will not be much leſs than if the ſurface was continuous.

Zahnius informs us, that one Newman, an engineer at Vienna, in the year 1699, made a Mirrour of paſte-board covered on the inſide with ſtraw glued to it, by which all kinds of metals, &c. were melted.

How to make ſpherical concaves and convex glaſſes, commonly called burning MIRROURS.

The uſe of theſe glaſſes is to unite the ſun-beams, and to kindle a flambeaux, wood, or any combuſtible matter. By them metals alſo may be diſſolved in a little time, as eaſily as in a crucible in a furnace.

The whole myſtery of making them is to have the moulds of a round ſhape, otherwiſe they have but a very weak effect on the

the ſun-beams; the moulds muſt be ſo exactly made, that neither ſide ſhall differ from the other.

To make the convex glaſs, your mould muſt be convex, and the convexity of it muſt be made by the ſphere, according as you would have it greater or leſſer; and it is from this ſphere the convexity of the Mirrour muſt be taken: As, for inſtance, take a ſphere of what bigneſs you pleaſe, divide it equally, and alſo one of the hemiſpheres in three equal parts, by planes parallel to the great circle; the convex ſegment ſhall then be the ſixth part of the whole ſphere, and the meaſure of your Mirrour.

If you would make the Mirrour a convex glaſs, you muſt have concave moulds, and theſe you may do two ways.

Take the two concave ſides of the mould, and cloſing them together equally, as the founders do their frames; pouring through the mouth of the mould your cryſtal metal, letting it fill the mould, and afterwards cool.

Another way is to take two concave Mirrours, and, joining their faces, ſolder them well all about, only leaving a ſmall orifice, through which you may fill it with ſome aqua-vitæ, and then ſtop the whole, and frame them with wood or metal.

This ſort of Mirrour has a more ready influence on the ſun-beams than any other: Theſe glaſſes muſt be very well poliſhed.

Theſe burning-glaſſes may be made parabolic or ſpheroidal, and ſuch have ſtill a better effect than the ſpheric; you muſt proceed, as to the moulding them, as you do in the former; you muſt obſerve a juſt proportion in doing them; for when they are too much raiſed, they are hindered by their depth from having a good effect, and upon this depends the whole nicety of the art.

To make metal MIRROURS, *concave ſpherics or parabolics, uſually called ſteel burning Mirrours.* The moulds for them are prepared as the former, whether concave or convex; and, as for ſuch as are flat, they may be caſt in ſand.

The metal of theſe Mirrours is called ſteel, becauſe it is of a very hard and bright compoſure and temper; and the harder the metal the better the Mirrour, and the eaſier to poliſh. The whiteneſs of it is very convenient for giving the quality of burning, and not only for that, but ſeveral other uſes; if it be too red or black, it alters the true diſtance and colour of its oppoſite objects; they may therefore make them of the following compoſition:

Take three pounds of copper, one pound of fine tin, half an ounce of white arſenic, and an ounce of tartar; firſt melt the copper, then put the tin in, immerged in the copper, or elſe it will fume away in the melting, and leave the copper behind; theſe two being well melted together, then caſt in the arſenic and tartar;

tar; after this, let all melt for two or three hours, and then mould it.

Some persons dose, with the former weight of copper and tin, half a pound of white arsenic; others, instead of white arsenic, put in a quarter of a pound of antimony.

Another. Take a pound of well-refined copper, melt it, then add three pounds of fine tin; as soon as these are melted, add six ounces of red tartar calcined, one ounce of salt-petre, two drachms of alum, and three ounces of arsenic; let these melt for three or four hours, that the salts may evaporate, and the stuff will be fit for moulding. This stuff is more solid and hard than the other

The following composition, given by Wolfius, is by some recommended as the best that is known for making Mirrours.

Melt one part of tin and another of marcasite together, and to the melted matter add two pounds of mercury: As soon as the mercury begins to evaporate into smoke, which it presently does, the whole composition is to be thrown into cold water, and, when cold, the water decanted off.

The mixture is then to be strained through a linen cloth, two or three double; and what is thus secerned, poured into the cavity of a glass sphere: This sphere is to be turned gently round its axis, until the whole surface is covered; the remainder being reserved for future use.

If the sphere were of coloured glass, the Mirrour will be so too.

The phænomena of concave MIRROURS. 1. Since the image of an object, included between two lines, at a distance less than one fourth of the diameter, may exceed the just height and breadth of the object; nay, may be made of any magnitude, how big soever: Objects placed between the focus and Mirrour must appear of enormous magnitudes in concave Mirrours; the image being so much the greater in the concave Mirrour as it is less in the convex.

2. In a convex Mirrour, the image of a remote object appears nearer the center than that of a nearer object: Therefore, in a concave Mirrour, the image of an object remote from the Mirrour appears at a greater distance than that of a nearer object, provided the distance of the object from that of the center be less than a fourth part of the diameter.

3. In a convex speculum, the image of a remote object is less than that of a near one; therefore, in a concave one, the image of an object placed between the focus and the Mirrour is nearer the focus than the speculum.

4. The image therefore of an object receding continually from a concave speculum becomes continually greater, provided it do not

not recede beyond the focus, where it becomes confuſed, and, as it approaches, it grows continually leſs.

5. If an object be placed between a concave Mirrour and its focus, its image will appear behind the Mirrour in an erected but inverted ſituation.

The phænomena of convex MIRROURS. 1. In a ſpherical convex Mirrour the image is leſs than the object.

And hence ſuch Mirrours are of uſe in the art of painting, where objects are to be repreſented leſs than the life.

2. In a convex Mirrour, the more remote the object is, the leſs the image is; and, again, the ſmaller the Mirrour, the leſs the image.

3. In a convex Mirrour, the right is turned to the left, and the left to the right; and magnitudes perpendicularly to the Mirrour are turned topſy-turvy.

4. The image of a right line perpendicular to the Mirrour is a right line; but that of a right line, either oblique to the Mirrour, or parallel to it, is convex.

5. Rays reflected from a convex Mirrour diverge more than if reflected from a plane Mirrour.

6. Rays reflected from a convex Mirrour, of a ſmaller ſphere, diverge more than if reflected from a larger.

To poliſh the ſteel MIRROURS. Whatſoever exactneſs you uſe in moulding theſe, they do never receive their true ſhape and perfection, until they are poliſhed and burniſhed; in doing which, leſt you ſhould ſpoil or endamage them, you muſt work away the outſide at the wheel with the ſand-ſtone, which the pewterers and braſiers uſe, and then apply the handle, and poliſh them ſufficiently, by rubbing with water.

When this is done, take it off this wheel and put it on the ſecond, and rub it with emery prepared, that it may be finely poliſhed, ſo that the ſcars may be ſcarce perceptible. Do this in an oblique line.

Then take it off this, and ſet it on ſuch another, and rub it with blood-ſtone prepared, and afterwards uſe calx of tin, working it for a long time until it have its due burniſh and perfection, ſtill doing it in the ſame obliquity.

Theſe Mirrours may be alſo poliſhed with lead artificially melted, with emery and water for the firſt proceſs; and very fine emery and lead for the ſecond, and in the laſt with blood-ſtone and tin-droſs: Theſe make a finer burniſh than the former; for the Mirrour is highly poliſhed by the tin-droſs.

MIRTH, is repreſented, in painting, &c. by a youth with jolly plump cheeks, cloathed in white raiment, painted with green branches; flowers red and yellow, with a garland of ſeveral flowers, holding a cryſtal glaſs full of claret in one hand,

and in the other a golden cup, and in a dancing poſture in a flowery meadow.

M. L. ſignifies Melchior Lorichius.

M. *Merian*, ſignifies Matthew Merian.

HIERONYMUS *Hieronymus* MOCETUS; he publiſhed the reſurrection of our Saviour, and ſeveral battles, and uſed this mark.

Pellegrino da MODENA, ſcholar of Raphael, lived at Rome and Modena, excelled in hiſtory painting.

MODESTY, is repreſented, in painting, &c. by a young girl, holding a ſcepter in her right hand, having an eye on the top, cloathed all in white, girded with a golden girdle, with her head inclined to the left, and in a plain head-dreſs.—Her plain head-dreſs intimates, that ſhe is content with a little, obſerving a due decorum; the girdle denotes the ſubduing of the unruly paſſions; her down and ſedate look ſhew her modeſty; the ſcepter and eye ſignify that ſhe has an eye to danger, and regards the ſubduing of her paſſions, to make them ſubmit to reaſon.

Pier Franceſco MOLA, born 1629, a ſcholar of Albani, lived in Rome, excelled in hiſtory; died in the year 1665, aged fifty-ſix years.

Sir *Anthony* MORE of Utrecht, born in the year 1519, ſcholar of Schoorel; lived in Italy, Spain, Flanders, and England; excelled in hiſtory and portraits; died in the year 1575, aged fifty-ſix years.

MORISCO, } is a kind of painting, carving, &c. done after
MORISK, } the manner of the Moors; conſiſting of ſeveral groteſque pieces and compartments, promiſcuouſly blended, not containing any perfect figure of a man, or other animal; but a wild reſemblance of birds, beaſts, trees, &c.

MOSAIC, } is an aſſemblage of little pieces of glaſs,
MOSAIC *work*, } marble, precious ſtones, &c. of various colours, cut ſquare and cemented on a ground of ſtuc, &c. imitating the natural colour and degradation of painting.

In performing this work, they provide little pieces of glaſs, of as many different colours as they poſſibly can.

For this purpoſe a glaſs-maker's furnace being prepared, and the pots or crucibles, full of the matter of which glaſs is made; they put into each crucible what colour or dye they think fit, always beginning with the weakeſt, and augmenting the ſtrength of the colour from crucible to crucible, until they come to the deepeſt tincture.

When the glaſs has been thoroughly concocted, and the colours are in their perfection, they take out the glaſs hot as it is, and pour it on a ſmooth marble, flatting it down with another like

like marble, and then cut it into ſlices of equal bigneſs, and about the thickneſs of an inch and a half.

Then with an inſtrument, which the Italians call bocca di cane, they make ſome pieces ſquare, and others of different forms and ſizes, as occaſion requires: Theſe pieces are orderly diſpoſed in caſes, as in painting in freſco; it is uſual to range all the different teints in ſhells, and according to their colour.

If it be deſired to have gold, either in the ground of the painting, or in the ornaments or draperies, they take ſome of the pieces of glaſs, formed and cut in the manner beforementioned. Theſe they moiſten on one ſide with gum water, and afterwards lay them over with leaf gold; then they put this piece, or ſeveral pieces at a time, on a fire-ſhovel, and place it in the mouth of the furnace, after they have firſt covered them with another hollow piece of glaſs. Theſe are let to ſtand until they are juſt red-hot, then the ſhovel is drawn out all at once, and the gold becomes ſo firmly attached to the glaſs, that it will never afterwards come off.

Now in order to apply theſe ſeveral pieces, and out of them to form a picture, they in the firſt place procure a cartoon or deſign to be drawn; this is transferred to the ground or plaiſter by calking, as in painting in freſco. See FRESCO.

As this plaiſter is to be laid thick on the wall, and therefore will continue freſh and ſoft a conſiderable time, ſo that there may be enough prepared at once, to ſerve for as much work as will take up three or four days.

This plaiſter is compoſed of lime, made of hard ſtone, with brick-duſt very fine, gum tragacanth, and whites of eggs; when this plaiſter has been thus prepared and laid on the wall, and made the deſign of what is to be repreſented; they take out the little pieces of glaſs with a pair of pliers, and range them one after another, ſtill keeping ſtrictly to the light ſhadow, different teints and colours repreſented in the deſign before them; preſſing orflatting them down with a ruler, which ſerves both to ſink them within the ground, and to render the ſurface even.

Thus in a long time, and a tedious deal of labour, they finiſh the work, which is ſtill the more beautiful, as the pieces of glaſs are more uniform, and ranged at an even height.

Some of theſe pieces of Moſaic work are performed with that exactneſs, that they appear as ſmooth as a table of marble, and as finiſhed and maſterly as a painting in freſco; with this advantage, that they have a fine luſtre, and will laſt ages.

The fineſt works of this kind, that have remained until our time, and thoſe by whom the moderns have retrieved the art, which was in a manner loſt, are thoſe in the church of St. Ag-

nes, formerly the temple of Bacchus at Rome; at Pisa, Florence, and other cities of Italy.

The most esteemed among the works of the moderns are those of Joseph Pine, and the chevalier Lanfranc in the church of St. Peter at Rome: There are also very good ones at Venice.

Mosaic *work of marble and precious stones.* These two kinds of Mosaic bear so near a resemblance to each other, as to the manner of working, that, to avoid repetition, we shall give them both under one; taking notice by the way, wherein the one differs from the other, either in the sawing, or the ranging of the stones.

Mosaic work of marble is used in large works, as in pavements of churches, basilics, and palaces; and in the incrustation and veneering of the walls of the same edifices.

As for that of precious stones, it is only used in small works, as ornaments for altar-pieces, tables for rich cabinets, precious stones being so very dear.

Though out of these must be excepted that sumptuous chapel of the dukes of Tuscany, which has been so long in hand, and which, if ever it be finished, will be a noble monument of the magnificence of those princes, and also of the patience and address of the workmen employed therein.

The ground of Mosaic works, wholly marble, is usually a massive marble, either white or black.

On this ground the design is cut with a chissel, after it has been first calked.

After it has been cut of a considerable depth, i. e. an inch or more, the cavities are filled up with marble of a proper colour, first fashioned according to the design, and reduced to the thickness of the indentures with various instruments.

To make the pieces thus inserted into the indentures cleave fast, whose several colours are to imitate those of the design, they use a stuc, composed of lime and marble dust; or a kind of mastic, which is prepared by each workman, after a different manner peculiar to himself.

The figures being marked out, the painter or sculptor himself draws with a pencil the colours of the figures, not determined by the ground; and in the same manner makes strokes or hatchings in the place, where shadows are to be; and, after he has engraven with the chissel all the strokes thus drawn, he fills them up with a black mastic, composed partly of Burgundy pitch poured on hot; taking off afterwards what is superfluous, with a piece of soft stone or brick, which, together with water and beaten cement, takes away the mastic, polishes the marble, and renders the whole so even, that one would imagine it only consisted of one piece.

This is the kind of Moſaic work, that is ſeen in the pompous church of the invalids in Paris, and the fine chapel at Verſailles, with which ſome intire apartments of that palace are incruſtated.

As none but the richeſt marbles and ſtones enter this work, to make them go the further, they are ſawn into the thinneſt leaves imaginable, ſcarce exceeding half a line in thickneſs; the block to be ſawn is faſtened firmly with cords on the bench, and only raiſed a little on a piece of wood, one or two inches high.

Two iron pins, which are on one ſide the block, and which ſerve to faſten it, are put into a vice contrived for the purpoſe, and with a kind of ſaw or bow, made of fine braſs wire, bent on a piece of ſpongy wood, together with emery ſteeped in water; the leaf is gradually faſhioned by following the ſtroke of the deſign, made on paper, and glued on the piece.

When there are pieces enough faſtened to form an intire flower, or ſome other part of the deſign, they are applied to the ground.

The ground which ſupports this Moſaic work is uſually of free-ſtone.

The matter, with which the ſtones are joined together, is a maſtic, or kind of ſtuc, laid very thin on the leaves, as they are faſhioned; and, this being done, the leaves are applied with pliers.

The manner of performing MOSAIC *work of gypſum.* Gypſum is a kind of coarſe talc, or a ſhining tranſparent ſtone, found in the quarries of Mont-Martre near Paris: It is different from the plaiſter of Paris, but retains the name which the Romans gave to the plaiſter, viz. gypſum.

Of this gypſum, or ſtone calcined in a kiln, and beaten in a mortar, and ſifted, the French workmen make a ſort of artificial marbles, imitating precious ſtones; and of theſe they compoſe a kind of Moſaic work, which does not come far ſhort, either of the durableneſs or the vivacity of the natural ſtones; and which beſides has this advantage, that it admits of continued pieces or paintings of intire compartments without any viſible joining.

Some make the ground of plaiſter of Paris, others of free-ſtone. If it be of plaiſter of Paris, they ſpread it in a wooden frame, of the length and breadth of the work intended, and in thickneſs about an inch and a half.

This frame is ſo contrived, that, the tenons being only joined to the mortiſſes by ſingle pins, they may be taken aſunder, and the frame be diſmounted, when the plaiſter is dry.

This frame is covered on one ſide with a ſtrong linen cloth, nailed all round, which, being placed horizontally with the linen at the bottom, is filled with plaiſter paſſed through a wide ſieve.

When the plaiſter is half dry, the frame is ſet up perpendicularly, and left until it is quite dry; then it is taken out, by taking the frame to pieces.

In this Moſaic the ground is the moſt important part.

Now in order to the preparation of this ſifted gypſum, which is to be applied on this ground, it is diſſolved and boiled in the beſt Engliſh glue, and mixed with the colour that it is to be of; then the whole is worked up together in the uſual conſiſtence of plaiſter; and then is taken and ſpread on the ground five or ſix inches thick.

This muſt be obſerved, that if the work be ſuch, as that mouldings are required, they are formed with gouges and other inſtruments.

It is on this plaiſter thus coloured like marble or precious ſtone, and which is to ſerve as a ground to a work, either of lapis, agate, alabaſter, or the like, that the deſign to be repreſented is drawn; having firſt been pounced or calked.

To hollow or impreſs the deſign, they uſe the ſame inſtruments that ſculptors do; the ground whereon they are to work not being much leſs hard than the marble itſelf.

The cavities, being thus made in the ground, are filled up with the ſame gypſum boiled in glue, only differently coloured; and thus are the different colours of the original repreſented.

In order that the neceſſary colours and teints may be ready at hand, the quantities of the gypſum are tempered with the ſeveral colours in pots.

After the deſign has been thus filled and rendered viſible, by half poliſhing it with brick and ſoft ſtone, they go over it again, cutting ſuch plates as are either to be weaker, or more ſhadowed, and filling them with gypſum; which work they repeat, until all the colours, being added one after the other, repreſent the original to the life.

When the work is finiſhed, they ſcour it with ſoft ſtone, ſand, and water; after that, with a pumice-ſtone; and in the laſt place poliſhed with a wooden mullet and emery.

Then, laſtly, they give it a luſtre, by ſmearing it over with oil, and rubbing it a long time with the palm of the hand, which gives it a luſtre, no ways inferior to that of natural marble.

If you would only make a variegated table, or other work, of ſeveral colours, without Moſaic figures, the proceſs is ſomewhat different.

Then you are to prepare colours ſeparately in bowls, as many as nature ſhews in the marble to be imitated; and, after you have incorporated them with gypſum and glue water, take a trowel full of each, and diſpoſe them in a trough, without any order; then without mingling them, and only by cutting or croſſing the gypſum

gypſum of each trowel, once with each of the reſt, they give them that beautiful confuſion, which renders natural marble valuable. Of theſe you may make tables, or lay them in a Mould according to the work to be done.

To MOULD *off figures in paſte.* Take the crumb of a new-drawn white loaf, mould it until it becomes as cloſe as wax, and very pliable; then beat it and roll it with a roll ng-pin, as fine and as far as it will go; then print it on the Moulds, and, when it has taken the ſuitable figure you deſire, dry it in a ſtove, and it will be very hard; and, to preſerve it from vermin, you may mix a little powder of aloes with it.

To MOULD *ſmall figures of jaſper colour.*—Oil your Moulds with a fine pencil, and diverſify them with ſuch colours as you pleaſe with gum tragacanth; if they ſpread or run, put a little of the gall of an ox, for the thicker it is the harder it will be; then Mould your paſte of the colour of jaſper, or the like, put it in to fill the Mould, tie it with a wire, and take it out; repair and varniſh it, and ſet it to harden.

The manner of preparing or making concave MOULDS.—Take clay, dry it well, reduce it to powder, and ſift it; mix it up with water, then ſtrain and filtre it; then work it up with horſe-dung and hair ſhred ſmall, till the maſs is ſufficiently tough; to which, if you pleaſe, may be added charcoal duſt, or brick-duſt well ſifted; then prepare two coarſe Moulds of a gritty ſtone, the one concave, and the other convex; grind them one on another with wet ſand between, till ſuch times as the one perfectly fits the other. By this means, a perfect ſpherical figure is acquired.

This being done, extend the maſs prepared before on a table, by means of a wooden roller, till it be of a thickneſs proper for the mirrour; then ſtrew it with brick-duſt, to prevent its ſticking, and lay it over the convex Mould, and ſo you will obtain the form of the mirrour.

When this is dry, cover it with another lay of the ſame maſs; and when it is dry take off each cover or ſegment of the hollow ſphere made of clay, and lay aſide the innermoſt of the two, and anoint the ſtone Mould with greaſe prepared from chalk and milk, and put the outward cover over it again.

Laſtly, cover the joining with the ſame clay of which the cover is formed, and bind the whole Mould together with iron wire, having cut two holes through the cover; the one for pouring in the melted matter of the mirrour, and the other for the air to eſcape out at, to prevent the mirrour from being ſpoiled with bubbles.

To MOULD *off naked perſons with plaiſter, in what form you pleaſe.* If the perſon whom you chuſe to take a Mould from, be

hairy on the thighs or breaſt, ſhave off the hair; but let that under the arm-holes be well greaſed with hog's greaſe, or cut it: Let not the body of the perſon be conſtrained to any unnatural poſture; and greaſe him well over.

Having placed him in the midſt of a table or large board, laid on the ground and greaſed, then make a counter Mould of brick or clay round him, which you muſt plaiſter on the inſide, ſo that it be about three fingers breadth from the figure.

If the legs are a little open, put a little clay before you make the counter Mould, or a thin board greaſed, between the legs, ſo that it neither touch them nor the thighs; then take other little pieces of thin board, in form of a knife, or thin wedge, ſharp on one ſide, but thicker than the other; greaſe them, then view the place where you intend the Mould ſhall ſeparate, be it in two, three, or four pieces; ſtick theſe pieces of board upon the clay, on the inſide the counter Mould, the ſharp edge to the ſide of the perſon that is to be moulded; but if you place theſe boards from the ſoles of the feet to the calf of the leg, gartering-place, knees, or higher; do it according as the leg, thigh, or other part of the body is ſituated, more or leſs inward or outward. The figure being caſt, and theſe pieces taken away, you have the place where to open the Mould.

Having raiſed the counter Mould as high as the ſhoulders, make a little trough, about two or three feet long, which muſt reſt on the top of your Mould, one end joining to the neck of your figure, at the other end place a wooden tunnel, as big as a large pail; then take ſix or ſeven large ſtaves, or ribs of a large caſk or barrel, bind them faſt about with a cord, for fear it ſhould burſt; then take plaiſter well burnt, and throw it into a large tub of water, or into ſeveral large braſs pails or kettles, with which, being neither too thick nor too thin, fill your counter Mould through the tunnel, that it may run down the trough; pour it in with all the expedition poſſible, for which you muſt have ſeveral hands to aſſiſt you. After it has been filled, the plaiſter will be ſet in a little time; which being done, pull down the counter Mould: Then with a large knife, or ſuch-like inſtrument, dreſs the outſide of the Mould, while the plaiſter continues eaſy to be cut; then take out the thin pieces of wood, and have other pieces of about a foot and a half long, more or leſs, in form of a wedge, and ſharp as a knife, about a finger in thickneſs on the back, and about half a foot broad; place theſe in the clefts made by the ſmall boards, and open the Mould, which ſhould be done in as few pieces as can be.

Thus will you have an upright figure in two pieces, except the arms.

But, in figures lying all along, the Mould muſt be in more pieces;

pieces; but if the figure hath one, or both arms extended, draw a circle like a bracelet with red ink, round about the arm or arms, about half a foot from the ſhoulder; which mark being imprinted in the Mould, the figure taken off will alſo have the ſame, which will eaſily direct where to cut it, and fit the length of the arm to the body of the figure.

If you deſire a copy of the figure, dreſs the Mould, tie the pieces ſtrongly together, and caſt plaiſter into it.

But if you would caſt a figure of bronze, or braſs, ſeparate the Mould where you put the ſmall pieces of wood; or elſe with an iron wire ſaw the Mould as near the hollow as poſſibly you can, ſo that, putting a bigger wedge into the cleft, you may open your Mould. Being divided ſo as that you may caſt your wax figure, make thick pieces of earth, dry it, greaſe it, and make a kernel, or inward Mould; put in the iron points or broches to ſupport it; take out the thickneſs of earth, pour in the wax, then melt it out, and bake the mould.

In like manner you may take off all ſorts of figures and poſtures according to the life; be ſure to caſt all your plaiſter at the ſame inſtant; for many and ſlow runnings make faulty Moulds: Alſo the perſon being up to the neck in plaiſter, the coldneſs of the water will ſo oppreſs his ſtomach, that he will be apt to ſhrink, or lift up his ſhoulders, and ſo deform the Mould.

But, to prevent this, let the water be made lukewarm. If you mix a third of fine brick with the plaiſter, and ſome plume alum, you may caſt braſs in it, only making a thickneſs of earth to make the kernel; but, before you bake it, give a laying or two of ſal armoniac water in all the hollow places of the mould, tying it with ſtrong wire, or iron hoops, and putting in the broches.

Thus you may caſt very fine figures either of lead or tin. The chief thing is to find out well-ſhaped perſons, and hard labourers, who have always their muſcles more ſtrong and better ſhaped than ſuch as live a more ſoft and eaſy life, who often have their bodies formed by their cloaths; nor thoſe whoſe toes grow over one another; the perſon muſt be ſet right, that the poſture may not ſeem awkward, eſpecially in upright figures.

How to MOULD *the face without much trouble to a perſon.*—Take a little bruſh or pencil, lay ſome warm paſte upon the hairs of the eye-brows, the forehead, all along the roots of the hair and upon the beard; lay the perſon on his back, and with a napkin rolled up compaſs the face about to hinder the plaiſter from falling into the neck, or upon the hair.

The plaiſter being well tempered, neither too thick nor too thin; and, that the buſineſs may be done the ſooner, let there be two to lay on the plaiſter with their hands, beginning at the forehead, and ſo all along the face, except at the noſtrils, which muſt

muſt not be ſtopped; but your Mould muſt be charged with as much thickneſs as it will bear, not ſtopping the noſe. If the plaiſter be good, it will ſet preſently, then take it gently off, and you have the Mould of the face to the life.

To MOULD *off the hands to the life.*—Place the hands in what poſture you think fit, greaſe them, and proceed as before; putting little boards greaſed, to divide the ſeveral pieces; after the ſame manner may feet and legs, in all poſtures, be done.

You ſhould always put a cloth under the Mould when you open it, that, if any ſmall pieces happen to break off, they may be gathered and joined with ſtrong glue.

To MOULD *off the face of a perſon in wax.*—Take a pound of new wax, a third of colophony, melt them at a ſlow fire, let them cool ſo long as that you may endure ſome of it on your hand without burning it; then having oiled the face all over with ſallad oil, cover the hair of the eye-lids and eye-brows with paſte, as alſo the beard; then with a bruſh nimbly cover the face, about the thickneſs of half a crown, being careful not to ſtop the noſtrils, and that the perſon ſqueeſe not his eyes together, becauſe that will render the face deformed.

Thus having the face of wax, take it gently off; then ſtrengthen it with clay on the backſide, that, in pouring in the plaiſter, it may not give way.

After this manner you may caſt all ſorts of faces; laughing, weeping, grimaces, or wry faces; alſo hands, feet, fruit, fiſh, or any thing elſe, dividing the Mould into two pieces with a warm knife; then join them, and fortify them with potters earth.

There is no way of caſting neater than this: The eyes being opened afterwards with a ſmall gouge, and theſe may be coloured to the life, and is a way of caſting very fit for painters, carvers, and engravers to caſt patterns.

MOUTH, *to paint in miniature.* Do it with vermilion mixed with white, and finiſh with carmine, which is to be ſoftened like the other parts of the face, &c. and, if the carmine does not prove dark enough for the purpoſe, mix biſtre with it: This is to be underſtood of the corners between the lips, and particularly for ſome dark open mouths.

M. R. ſignifies Mark Ravennate, or Ravignano, i. e. Mark of Ravenna, ſcholar to Mark Anthony Raimondi.

M+S. ſignifies Martin de Secu, or Schonio, called by ſome Bonmartine, and Alvert Durer's maſter.

MUSES; they are reckoned nine in number, viz. Calliope, Clio, Erato, Thalia, Euterpe, Melpomene, Terpſichore, Polyhymnia, and Urania.

They are called Muſes, as Euſebius writes, of παρὰ τὸ μανῆναι, i. e.

i. e. to inſtruct, becauſe they teach the moſt honeſt and laudable diſciplines.

Calliope, of καλὸς, good, and ὄψ, voice, is repreſented, in painting, as a beautiful goddeſs, crowned with a coronet of gold; upon her left hand, garlands of bays in ſtore for the reward of poets; and in her right hand three books, upon which are written Homerus, Virgilius, Ovidius.

Clio, of κλείω, Gr. to celebrate, one of the nine Muſes, taken for heroic poetry, is repreſented as a graceful matron, crowned with a coronet of bays, holding in her right hand a trumpet, and in her left a book, upon which may be written Hiſtoria.

Erato, from ἔρως, love, or ἐράω, Gr. to love, one of the nine Muſes, fabled to be the preſident of lovers and amorous perſons; ſhe is repreſented as a woman of a ſweet and comely viſage, her temples adorned with myrtles and roſes, bearing an heart with an ivory key, Cupid ſtanding by her ſide winged, his bow and quiver at his back, and holding a lighted torch.

Thalia, of τῷ θάλλω, Gr. to be green, or flouriſh, one of the nine Muſes, ſuppoſed to be the inventreſs of geometry and huſbandry, is repreſented as a lady of a ſmiling countenance, and upon her temples a coronet of ivy, clad in a mantle of carnation, embroidered with ſilver twiſt, and golden ſpangles, holding in her left hand a viſard; the ivy indicates, that ſhe is miſtreſs of comic poetry.

Euterpe, is ſo called of εὖ, well, and τέρπω, to give delight, ſuppoſed to be the inventreſs and preſident of the mathematical ſciences, &c. is repreſented as a damſel of a chearful countenance, crowned with a garland of flowers, holding in each hand ſundry wind inſtruments.

Melpomene, of μέλπομαι, Gr. to ſing, one of the nine Muſes, to whom the poets aſcribe the invention of tragedy, is repreſented like a virago, with a grave and majeſtic countenance, her head adorned with pearls, diamonds, and rubies; holding in her left hand ſcepters with crowns upon them; other crowns and ſcepters lying at her feet, and in her right hand a naked poniard; clad in a mantle of changeable crimſon.

Terpſichore, of τέρψις, delectation, and χορεία, Gr. a dance, one of the nine Muſes, to whom is attributed the invention of dancing and balls, is repreſented as a beautiful woman of a chearful countenance, playing upon ſome inſtrument, having upon her head a coronet of feathers of various colours; but chiefly green; in token of the victory which the Muſes obtained over the ſyrens, &c. by ſinging.

Polyhymnia, of πολὺς and ὕμνος, a hymn, one of the nine Muſes, ſuppoſed to be the preſident of hymns, ſongs, and muſic; is repreſented as a beautiful woman cloathed in white, her hair diſhe-

diſhevelled, of an orient yellow, upon her head a garland of the choiceſt jewels, intermixed with flowers, and in her left hand a book, upon which may be written Suadere.

Urania, of οὐρανὸς, Gr. heaven, one of the nine Muſes, to whom is attributed the invention of aſtronomy, is repreſented as a beautiful lady, cloathed in a robe of azure, crowned with a coronet of bright ſtars, holding in her right hand a celeſtial globe, and in her left a terreſtrial one.

Girolamo MUTIANO *da Breſcia*, born in the year 1528, ſcholar of Romanini, ſtudied Titian, and Tad Zucchero, lived at Rome, excelled in hiſtory and landſcape; died in the year 1590, aged ſixty-two years.

Daniel MYTENS, was a Dutch portrait-painter, in the time of king James and king Charles I; he painted the pictures of thoſe two kings.

Some of his pictures have been taken for Van Dyke's, whoſe manner he imitated. His head is alſo to be ſeen among thoſe of that great maſter, who painted his picture.

He had a penſion from king Charles I, being his majeſty's principal painter; and upon Van Dyke's arrival in England, tho' he loſt his place, yet his penſion was continued to his death.

M. Z. ſignifies Martin Zinhius, i. e. Zaringeri, 1500.

N.

NADAT, has marked his plates with a mole or a want-trap.

NAIADES, ſo called of νάω, Gr. to flow, are the nymphs of the floods, and are repreſented as beautiful damſels, with hair tranſparent as cryſtal, their arms and legs naked, crowned with garlands of water-creſſes, with red leaves; their actions are pouring water out of urns, &c.

NAPÆÆ, are nymphs of the mountains, ſo called of νάπος, the top of an hill, or woody valley; they are repreſented as damſels with a ſweet and gracious aſpect, clad in green mantles, girded about the waiſt, their heads adorned with garlands of honey-ſuckles, wild roſes, thyme, and the like, either dancing in a ring, making garlands, or gathering flowers.

To paint the NARCISSUS; for all theſe flowers of the yellow ſort, ſingle or double, firſt lay on maſticot, then gamboge, and finiſh it by adding a little umber and biſtre; but the cup or bell in the middle are to be excepted, which are to be done with orpiment and gall-ſtone, and edged with vermilion and carmine.

As for the white Narciſſus, cover them with white, and ſhade with

with black and white; except the cup or bell, which do with maſticot and gamboge.

Let the green be ſap green, ſhaded with iris.

N.B. ſtands for Nicholas de Bruyn.

N.B.L.F. ſtands for Nicholas Beatrici Lotharingius fecit.

N.C.F. ſtands for Nicholas Chapron fecit; anno 1649, he engraved Raphael's galleries, painted in the Vatican.

NEALING, is a term uſed for the preparing ſeveral matters, by heating or baking them in an oven, or the like. See ANNEALING.

Peter Van NELPE, an engraver of all ſubjects, uſed this mark.

NEMESIS, according to Pauſanias and Ammianus Marcellinus, was held to be the goddeſs of puniſhments, who chaſtiſes the offences and crimes of malefactors with pains and torments, according to their demerits and ſins; and rewards the virtuous with honours and dignities: She is ſaid to be the daughter of Juſtitia, who dwells and inhabits very ſecretly within the houſe of eternity, recording the offences of the wicked, and a moſt ſevere and cruel puniſher of arrogancy and vain-glory.

NEPTUNE, was depicted, by the ancients, naked, with ſeveral countenances, ſometimes mild and pleaſant, at other times lowering and ſad, and, at other times, with a mad and furious aſpect; ſtanding upright in the hollowneſs of a great ſea ſhell, holding in his hand a ſilver trident or forked mace; drawn by two monſtrous horſes, which, from the middle downwards, have the ſhape of fiſhes.

The variety of aſpects is given him from the ſea, becauſe that, at certain times, ſheweth itſelf ſo; and the trident repreſents the three gulphs of the Mediterranean ſea.

Sometimes he is repreſented with a thin veil, hanging over one of his ſhoulders, of a cerulean or bluiſh colour.

Lucian deſcribes him with very long hair, hanging over his ſhoulders, of a very dark colour.

Martianus deſcribes him of a greeniſh complexion, wearing a white crown: Alluding thereby to the ſpume and froth of the ſea.

He is alſo painted with long hoary hair, clad in a mantle of blue, or ſea-green, trimmed with ſilver, riding in a chariot of a blue colour, or on a dolphin of a brown black colour, holding in his hand a ſilver trident.

Plato deſcribes him in a ſumptuous chariot, drawn by ſea horſes galloping, holding in one hand the reins of a bridle, in the other a whip.

NIGHT, the mother of Sleep and Death, is repreſented by the ancients in the form of an old woman, of a ſad countenance,

having two large wings on her ſhoulders, coal black, and ſpread abroad, as if ſhe ſeemed to offer at a flight; and drawn in a chariot with wheels of ebony, and cloathed in an upper garment of a deep black, ſpotted all over with ſilver ſpots, like ſtars.

NITRE, is a ſort of ſalt, thus called by the ancients; but by the moderns more uſually ſalt-petre. See SALT-PETRE.

N. M. B. ſignifies Nicholas Manuel de Berna, 1518.

NOVEMBER, is deſcribed, in painting, &c. in a robe of changeable green and black; wearing on his head a garland of olives, together with the fruit on, holding in his right hand Sagittarius, and in his left bunches of parſnips and turnips.

NUDITIES, in painting and ſculpture, are thoſe parts of a human figure which are not covered with any drapery; or thoſe parts where the carnation appears.

To die cloth or ſtuff a NUTMEG *colour.* Put two or three quarts of walnut-ſhells, or walnut-roots, into a copper, make it boil, and then put in the ſtuffs and rollers; and, after a convenient time, take them out and cool them, and make the ingredients boil again; then put in the cloth again, and let it boil for half an hour; then take it out and cool it, and add to the liquor three pounds of madder, and one pound of galls, putting them in together with the ſtuffs; let them boil for an hour, then take out the cloth and cool it; then put into the kettle two pounds of copperas, ſtir it well about, and put the cloth into the copper again; look well after the fire, and keep ſtirring the ſtuff about, till the colour is deep enough; then rinſe it out, &c.

Mario NUZZI *di Fiori*, born in the year 1599, ſcholar to his uncle Tomaſo Salmi, lived at Rome, excelled in flowers; died in the year 1672, aged 73 years.

NYMPHS, ſo called of νύμφη, Gr. a bride, are feigned to be the daughters of Oceanus, i. e. the Ocean, the mother of the floods, the nurſes of Bacchus, and goddeſſes of the fields, who have the protection and charge of the mountains, herbs, woods, meadows, rivers, trees, and, generally, of the whole life of man.

NYMPHÆ *Dianæ*, Diana's nymphs, are repreſented cloathed in white linen, to denote their virginity, and their garments girt about them ſo as to expreſs their hability and readineſs for hunting; their arms and ſhoulders naked, holding in their hands bows, and quivers on their backs.

O.

OAR, or ORE, is the mineral glebe, or earth dug out of mines to be purified, and the metalline parts procured, and ſeparated from the ſame.

OBEDIENCE, is repreſented, in painting, &c. by a pious, modeſt virgin, ſubmitting to a yoke, with the inſcription Suave on it.—The yoke and croſs import the difficulties that accompany this virtue, as ſuave does the pleaſures reſulting from the practice when it is ſpontaneous.

OBLIGATION, is repreſented, in painting, &c. by an armed man with two heads and four hands, to demonſtrate, that a man obliged acts two parts, viz. to take care of himſelf, and to ſatisfy another; the hands and heads ſignify the dividing the thoughts and operations.

OBSCURA *Camera*. See CAMERA.

OBSCURA *Claro*. See CLARA.

OBSTINACY, is repreſented, in painting, &c. as a woman clad all in black, her head ſurrounded with a cloud, holding an aſs's head with both her hands.—Black denotes Obſtinacy, becauſe it will take no other colour; ſo an opinionative man will never be beat out of his error; the clouds denote the ſhort ſight of the obſtinate, that makes them ſo ſtiff that they will look no farther; the aſs ſhews that groſs ignorance is the mother of it.

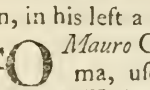
OCEANUS, the father of all the ſea-gods, was repreſented with the face of an old man, and a long white beard, drawn on a glorious chariot, accompanied and attended with a great company of nymphs.

OCULUS *Beli*, the name of one of the ſemi-pellucid gems. It is a very elegant and beautiful gem. Its baſis, or ground, is a whitiſh grey, variegated with yellow, and ſometimes with red, and a little black, but that more rarely; and is found in ſmall maſſes, from half an inch to an inch in diameter, of a rounded figure, and thickeſt in the middle, tapering away gradually to the ſides. The outer part of the ſtone, or that toward the edges all around, is ever of a whitiſh grey, more or leſs variegated with yellow, &c. and its central nucleus is always of a deep and fine black, ſurrounded by a broad circle of a pale yellow, and repreſenting very beautifully the pupil and iris of the eye: Theſe are incloſed in the matter of the ſtone, and are often ſurrounded by other very fine concentric circles of a pale flame colour; but, more frequently, there is only the black pupil ſurrounded by the yellow iris, and that placed in the body of the ſtone, which repreſents the white of the eye: The ſhape of the ſtone alſo favours its reſemblance of the eye, and the whole is very elegant. It is of the hardneſs of the agate, and takes a tolerable poliſh; when thrown into water, it has, in a great meaſure, the property of the oculus mundi, the whole ſtone becomes greatly more bright and lucid, and the grey part becomes of a plainly yellowiſh caſt.

There

There are many things improperly called Oculus Beli by our jewellers, but the genuine ſpecies is very rare. Nothing is more common than to find in the agates little circular veins of different colours round a central ſpot; theſe the lapidaries frequently cut out with a proper quantity of the ſtone about them.

OCTOBER, is repreſented, in painting, in a garment of the colour of decaying flowers and leaves, and upon his head a garland of oak-leaves with the acorns; holding in his right hand a ſcorpion, in his left a baſket of ſervices, medlars, and cheſnuts.



Mauro ODDI, an engraver and painter, of Parma, uſed this mark.

OECONOMY, is repreſented, in painting and ſculpture, by a venerable dame, crowned with olive, a pair of compaſſes in her left hand, and a ſmall wand in her right, and a rudder of a ſhip by her ſide.—The ſtick denotes the rule a man has over his houſe; the rudder, the care a father ought to have over his children; the olive garland, the pains he ought to take in maintaining peace in his family; the compaſſes, prudence and moderation.

OFFENCE, is repreſented, in painting, &c. by a brutiſh woman, her cloaths ruſt-coloured, with tongues, preſenting a piece at two dogs going to worry a hedgehog.—The ruſt ſhews Offence; the tongues, that ſhe offends in words and deeds; the dogs and hedgehog, that thoſe that do hurt to others, are hurt themſelves.

OILS; the beſt that can be uſed in painting are Oil of nuts, and linſeed Oil.

Oil of ſpike, which is made of lavender flowers, ſerves to make the colours run better, and renders the touching the picture over again the more eaſy; it alſo takes off the glittering of a picture, and is proper to do the ſame by the filth, and clean it: but the painter muſt have a care it does not take off the colour too.

Oil of turpentine, which is drawn from roſin, is good to touch a picture over again with; but eſpecially to mix with ultramarine and enamels; becauſe it helps to ſpread them, and evaporates immediately. When the artiſt would make uſe of it, it is not neceſſary he ſhould make uſe much of other Oil, which will only turn the colour yellow.

Oil of nuts, is uſed by painters, boiled up with the ſcum of lead, in which ſilver has been melted by a quick and great fire. To this is added an onion whole and peleed, which is taken out after it has boiled. This takes away from the Oil its greaſy quality.

Oil of nuts, is alſo boiled with powder of azure and enamel, which, being boiled, is let to ſtand a little, and then the top taken

ken off. This is used to temper white, and the other colours, which the painters would have be kept clean.

Oil of turpentine is used to dissolve the colours, and make them spread the better, and to make the work dry the sooner.

Fat OIL; put linseed Oil into leaden vessels, made in the form of dripping-pans, so much as to be an inch deep; expose them to the sun for six months, till it becomes as thick as turpentine; the longer it stands, the fatter it will be, and give to gold a greater gloss. If it is almost as thick as butter, so as you may, in a manner, cut it with a knife, it is excellent, and ought to be carefully kept for use.

To make drying OIL. Mix a quart of linseed Oil with three ounces of litharge of gold, and boil them for a quarter of an hour; but, if you would have it more drying, boil it a little longer. But beware of boiling it too thick, so as not to be fit for use.

2. *Or thus:* Take red lead and umber, in fine powder, half an ounce; linseed Oil, two pounds; boil all as before; let it stand for two days, and it will have a skin over it; then it is fit for use.

To make OIL-*skin now used for hat-cases.* Take of drying Oil, set it on the fire, and dissolve it in some good rosin, or, which is better, but dearer, gum lac; and let the quantity be such as may make the Oil as thick as a balsam, for it must be so thin as to run about if spread upon a cloth.

When the rosin or gums are dissolved, you may either work it of itself, or add to it some colour, as verdigrease for a green, or umber for a hair colour, or indigo and white for a light blue.

This varnish, if spread on canvas, or any other linen cloth, so that the cloth be fully drenched, and intirely glazed over with it, and suffered to dry thoroughly, is impenetrable for all manner of wet.

In the working of it there is no great skill required, if you can but use a painter's brush; only let the matter you lay it on be thoroughly drenched, that the outside may be glazed with it: If you desire a colour on the outside, you need only grind a colour with the last varnish you lay on.

Painting in OIL. The ancients, as is said elsewhere, knew nothing of the art of painting in Oil; but it was found out and practised by a Flemish painter in the fourteenth century.

It may be truly said, that painting then received a very great improvement, and a wonderful conveniency; for, by this means, the colours of a picture keep a long while; and a lustre and union are added to them, of which the ancients were ignorant, whatever varnish they made use of to spread over their painting; and yet all this secret, that lay hid so long, consists in nothing but in grinding the colours with Oil of nuts, or linseed Oil.

It is true, this ſort of work is very different from freſco and diſtemper; for, the Oil not drying ſo ſoon, the work muſt be touched over ſeveral times. But then, on the other hand, the painter has the advantage of more time to finiſh his picture, and touch over again all the parts of the figures, which he that works in diſtemper and freſco has not.

The Oil alſo gives the work a greater force, becauſe the black becomes more black, when it is tempered with Oil, than when it is tempered with water.

All the colours run better together, are more ſoft, more delicate, and more agreeable, there being an union and tenderneſs in this manner, which is not in any other.

One may paint in Oil againſt walls, on wood, on cloth, on ſtones, and all ſorts of metal.

The thing on which the painter intends to paint, muſt, in the firſt place, be prepared by a primer, as the artiſts call it; which ſeems to make the ground, and renders the field very equal and ſmooth.

If he is to paint againſt a wall, when it is very dry, he muſt lay on two or three layers of boiling hot Oil, and that as often as he thinks requiſite, even till he perceives the plaiſter to be greaſy, and will imbibe no more Oil.

He then takes white chalk, red oker, and other earths, and grinds them to a conſiſtence, of which he lays a layer on the wall; when that is dry, he deſigns his ſubject, and afterwards paints upon it, mixing a little varniſh among his colours, that he may not be obliged to varniſh them when painted.

Some prepare the wall after another manner to dry it the more, that the moiſture may not make the colours ſcale off, as it often happens by the Oil's oppoſing it, and hindering its coming out; to prevent this, they make a plaiſter of lime and marble duſt, or a cement of pounded tiles, which they beat with a trowel to fine it, and then lay on the linſeed Oil with a great bruſh.

After this, they prepare a compoſition of Greek pitch, maſtich, and varniſh, which they boil together in an earthen pot, and then ſpread it over the wall with a bruſh, and chafe it in with a hot trowel, to extend and ſmooth it the better; afterwards they lay on chalk, red oker, &c. as above-mentioned, before they deſign any thing.

Some have ſtill another way; they make a plaiſter of lime-mortar, with a cement of tile and ſand; and, when that is dry, they make another of lime and cement well ſifted, and droſs of iron, as much of the one as of the other; all which being well pounded and incorporated together with whites of eggs and linſeed Oil, they make the fineſt plaiſters in the world.

But you muſt not fail to take care, not to leave the plaiſter

while it is freſh laid on, nor till well ſpread all over with the trowel, and ſmooth every-where; for otherwiſe it will cleave in ſeveral places.

When it is dry, they lay on the colours as before-mentioned.

When the painter would paint upon wood, he firſt bruſhes it very well with a bruſh, and then lays on a layer of white, tempered with paſte, before he covers it with Oil: But now cloth is moſt made uſe of, eſpecially for large pictures, by reaſon of their more eaſy carriage from one place to another than wood, which is heavy, and beſides apt to crack.

Painters generally chuſe ticking or the ſmootheſt cloth they can get; and, when it is well ſtretched upon a frame, they lay on a layer of paſte-water, and then rub it over with a pumice-ſtone to take off the knots.

The paſte-water ſerves to ſmooth down all the little threads in the cloth, and fill the little holes, that the colours may not paſs over them.

When the cloth is dry, they lay on a colour that will not kill the other colours, as red oker, which is a natural earth of ſubſtance, and with which they ſometimes mix a little white lead, that it may dry the ſooner.

This colour is firſt ground with nut or linſeed Oil; and, to lay it on of what thickneſs they pleaſe, they have a great knife for that purpoſe.

When it is dry, they rub it over again with a pumice-ſtone, to ſmooth it; then, if they pleaſe, they lay on another layer, compounded of white lead, and a little of the black of coal, to make the ground greyiſh; and in both ways they put on as little colour as they can, that the cloth may not break, and the colours, that are to be laid on upon it, may keep the better.

If the primed cloth is not thus at firſt oiled, but the painter falls to painting at once, the colours will look better, and remain more beautiful.

In ſome pieces of Titian and Paulo Veroneſe, it is obſerved that their firſt lay was of diſtemper, on which they afterwards painted with Oil colours; by this means their works looked the more lively and freſh, for the diſtemper attracted and imbibed the Oil that was in the colours, and was the cauſe that they remained the more beautiful, the Oil taking off a great deal of their vivacity.

For which reaſon, thoſe who would have their pieces keep freſh, make uſe of as little Oil as they can, and keep their colours the firmer, by mixing with them a little Oil of ſpike, which ſoon evaporates, but ſerves to make them run the better, and renders them more pliable in working.

Another cauſe of colours loſing their beauty is when the pain-

ter works them too much in mixing them; for, being jumbled together, they change and corrupt one another, and take away their vivacity; wherefore he muſt be careful to uſe them properly, and lay the colours each in its place, without mingling them too much with the pencil or bruſh; alſo not to temper adverſe colours together, as blacks with others, particularly ſmoke-blacks; but to uſe them apart as much as poſſible.

And, when he would give the more force to his work, he ſhould ſtay till it is dry, to touch it over again with colours that will not damnify the others.

It is a conſiderable thing towards the preſervation of the beauty of their pictures; for there have been ſome which have been much upon the eaſel, and yet the colours have not been laſting; becauſe thoſe who uſed them, worked and jumbled them too much together with the bruſh and pencil, through too much fire.

Thoſe who paint with judgment lay them on with leſs precipitation, put them thicker, cover and recover their carnations ſeveral times, which the painters call well-kneading.

As for painting the cloth at firſt with a lay of diſtemper, it is true that is not often done, becauſe it may then ſcale, and will not roll up but with difficulty; for which reaſon painters have been contented to put on a lay of colours in Oil; but, when the cloth is good and very fine, the leſs colour that is put on it in priming, it is the better; and the painter muſt always be careful that his Oil and colours be good.

When a painter is to work on metal, marble, or any other ſtone, he need only lay on a thin layer of colours before he deſigns any thing, and not at all on the ſtones where he would have the ground appear, as on marble when it is of an extraordinary colour.

Materials for painting in OIL. Painting in Oil is the ſame as that of limning before-mentioned, performed with colours made up or tempered with Oil.

The materials uſed in this art are chiefly ſeven: 1. the eaſel; 2. the pallet; 3. the ſtraining frame; 4. the primed cloth; 5. pencils; 6. the ſtay; 7. colours.

The eaſel is a frame made of wood, much reſembling a ladder, with flat ſides and full of holes, to put in two pins to ſet the ſtraining frame and cloth upon, either higher or lower at pleaſure, being ſomething broader at the bottom than at the top; on the backſide of which is a ſtay, by which the eaſel may be ſet either the more ſloping or more upright.

The pallet is a thin piece of wood, either of pear or of walnut tree, about a foot in length, and ten inches in breadth, in almoſt an oval form, at the narroweſt end of which is an hole to put in the thumb of the left hand, near which there is a notch cut,

that the pallet may be held in the hand: The uſe of this is to hold and temper the colours upon.

The ſtraining frame is made of wood, on which the primed cloth, that is to be painted upon, is faſtened with nails. Theſe frames ought to be of ſeveral ſizes, according to the ſize of the cloth.

The primed cloth is that which is to be painted upon, and is to be prepared as follows:

Take good canvas, and firſt ſmooth it over with a ſleek-ſtone; ſize it over with good ſize and a little honey, and let it ſtand to dry; then lay it over once with whiting and ſize, mixed with a little honey, and the cloth is prepared: On this you may firſt draw the picture with a coal, and afterwards lay in the colours. Where, by the way, you may take notice, that the uſe of honey is to prevent it from cracking, peeling, or breaking out.

Pencils of all ſizes, from a pin to the bickneſs of a finger, which are called by ſeveral names; as Dutch quill fitched and pointed, gooſe quill fitched and pointed, ſwan quill fitched and pointed, jewelling pencils, and briſtle pencils, ſome in quills, ſome in tin caſes, and ſome in ſticks.

The ſtay, or molſtic, is a ſtick, generally of braſil wood, in length about a yard, having a ſmall ball of cotton at one end of it, fixed hard in a piece of leather, about the ſize of a cheſnut, which is to be held in the left hand while you are working; and, laying the end which hath the leather ball upon the cloth or frame, you may reſt your right arm upon it.

The colours are in number ſeven, as has been ſaid elſewhere, viz. white, black, red, green, yellow, blue, and brown.

Of which, ſome may be tempered upon the pallet at firſt; ſome muſt be ground and then tempered; and others muſt be burnt, ground, and laſtly tempered.

As for the ſize for ſizing the primed cloth: Boil glue well in fair water till it be diſſolved, and it is made.

To make the whiting for the ground of the cloth. Mix ground whiting with the ſize, and with it white the cloth or board, it being firſt made very ſmooth; and, after dying them, do them over again a ſecond or third time; afterwards ſcrape them ſmooth, and lay it over with white lead tempeted with Oil.

To keep the colours from ſkinning over. Oil colours, if they ſtand but a little time before they are uſed, will have a ſkin grow over them; which may be prevented by being put into a glaſs, and putting the glaſs three or four inches under water, and then they will never thin nor dry.

To cleanſe the grinding-ſtone and pencils. Grind curriers ſhavings upon the grinding-ſtone, if it be foul, and afterwards crumbs of bread; and they will fetch off all the filth.

And, as for your pencils, dip them in Oil of turpentine, and ſqueeſe them between your fingers, and they will come very clean.

The fitting the colours for painting; ſee the names of the ſeveral objects, and the article COLOUR.

To dye ſtuff, &c. of an OLIVE *colour.* This muſt be ordered as the brimſtone yellow, after which prepare ſuds of galls and copperas, but not ſtrong; through which paſs the ſtuffs two or three times, according as you would have the dye lighter or deeper, and it will produce an Olive colour.

Iſaac OLIVER, was a famous limner, who flouriſhed about the latter end of the reign of queen Eliſabeth: He was eminent both for hiſtory and face painting, many pieces of which were in the poſſeſſion of the late duke of Norfolk; and, being a very good deſigner, his drawings were finiſhed to a mighty perfection; ſome of them being admirable copies after Parmegiano, &c. He received ſome light in that art from Frederico Zucchero, who came into England in that reign. He was very neat and curious in his limnings, as may be ſeen by ſeveral hiſtory pieces of his in the queen's cloſet. He was likewiſe a very good oil-painter in little.

He died, between fifty and ſixty, in king Charles the Firſt's time, and was buried in Black-friars, where there was a monument ſet up for him, with his buſt; all which has been deſtroyed by fire.

Peter OLIVER, was the ſon of the before-mentioned, who had inſtructed him in his art; he became exceeding eminent in miniature, inſomuch that he outdid his father in portraits. He drew king James I, prince Henry, prince Charles, and moſt of the court at that time. He lived to near ſixty; and was buried in the ſame place with his father, about the year 1664.

ONYX, a precious ſtone, accounted a ſpecies of opal.

Its colours are uſually white and black, which appear as diſtinct as if laid on by art.

There are ſome brought from Arabia, mixed with a greyiſh hue, which, after taking off one lay or row, ſhew another underneath of a different colour.

OPAL, is a precious ſtone of various colours: In it are ſeen the red of the ruby, the purple of the amethyſt, the green of the emerald, beſides yellow, and ſome black and white.

When this ſtone is broke, moſt of theſe colours diſappear; which is a ſign that they only ariſe, by reflection, from one or two of the principal ones.

Its form is always either round or oval; its prevailing colour white. The diverſity of its colours makes it almoſt of equal value with the ſapphire or ruby.

To counterfeit an OPAL. At Haerlem, they make counterfeit

Opal

Opal glaſs, which is very lively, and whoſe ſeveral colours are ſuppoſed to be produced by different degrees of heat: When the compoſition is thoroughly melted, ſome of it is taken out on the point of an iron rod, which, being cooled either in the air or water, is colourleſs and pellucid; but, being put again into the mouth of the furnace upon the ſame rod, and turned round for a little time, its particles acquire ſuch various poſitions, as that the light falling on them, being variouſly modified, repreſents the ſeveral colours obſervable in the true Opal: And it is remarkable, that theſe colours may be deſtroyed and reſtored again by different degrees of heat.

OPINION, is repreſented, in painting, &c. by a woman in a genteel garb, neither handſome nor disfigured, but ſeems daring and bold, ready to fly in one's face, upon every thing ſhe fancies is miſrepreſented; and therefore has wings on her hands and ſhoulders.—Her face ſhews that there is no Opinion but may be maintained and embraced, nor any ſo well grounded but may be diſliked.

OPS, or TELLUS, the wife of Saturn, is repreſented as an old woman of a large body, and continually bringing forth children, with which ſhe is encompaſſed or beſet around, clad in a green veſtment, with a veil over all her body, ſpotted with divers colours, wrought with a vaſt number of knots, and ſet with all ſorts of gems and metals.

She was alſo repreſented in the form of an ancient woman, having her head encompaſſed with ears of corn; holding in her hand a poppy-head; drawn in a chariot by two fierce and untamed dragons.

ORANGE *colour*. An Orange colour for waſhing prints is made by laying on a tint of gamboge, and, over that, ſome minium or red lead waſhed.

This colour may be mixed with gamboge, upon a white Dutch tile, to render it of the tint you would have it, either ſofter or ſtronger; or the gamboge may be glazed over, and ſtrengthened with the tincture of ſaffron, which will make it glare into a ſtrong Orange. See MINIUM.

To dye ſilk an ORANGE *colour*. Firſt, lay the white ſilk in alum water, in the ſame manner as the yellow; then take the eighth part of a pound of Orleans, diſſolve it in water for the ſpace of one night, add to it one ounce of pot-aſhes; boil it for half an hour, then add an ounce of beaten turmeric; ſtir it very well, let it ſtand a little while, and then put in the alumed ſilk, and let it remain there, one, two, or three hours, according as you would have the colour light or dark; rinſe it in fine ſoap ſuds, till it is perfectly clean; then beat and dry it.

ORDONNANCE, } in painting, is used for the disposition
ORDINANCE, } of the parts of a painting, either with respect to the whole piece, or to the several parts; as the groups, masses, contrasts, aspects, &c.

The doctrine of Ordonnance is comprised in the following rules:

In the Ordonnance there are three things to be regarded, viz. the place or scene where; the distribution how; and the contrast.

As to the first, regard is to be had as to the disposition of things, to serve as a ground-work; and to the plan and position of bodies: Under the former of which comes first landscape, whether an uninhabited place, where there is a full liberty of representing all the extravagancies of nature; or inhabited, where the signs of cultivation, &c. must be exhibited. See LANDSCAPE.

2. The building, whether rustic, wherein the painter's fancy is at liberty; or regular, wherein the orders are to be nicely attended to.

3. The mixture of both, in which it is a maxim to compose in great pieces, and to make the ground-plot big enough; to neglect some little places, in order to bestow more on the whole mass; and to exhibit a view of the more considerable places with the more advantage; and to represent some agitation in all things that move.

As to the plan of bodies, they are either solid, which again are either so by nature, and must be proportioned to their places; or artificial, where regard must be had to the rules of geometry, perspective, architecture, &c.

Or the bodies move; and this they do, either by a voluntary motion, wherein great regard must be had to proportion them to their situation, and to strengthen them by the regarding equilibrium; or by some extraordinary power, as machines, &c. where the causes of their motions must appear.

Or they are things at a distance, in all which an even plane must still be proposed, to find their precise situation, and settle their place by sudden breaks and distances, agreeable to perspective.

In placing the figures, regard is to be had,

1. To the group, which connects the subject and stays the sight. In this the knot or nodus which binds the group is to be considered, and also the nearness of figures, which may be called the chain, inasmuch as it holds them together; that the group be sustained by something loose and distinct from it, and by the same joined and continued to the other groups; and that the lights and shadows be so disposed, as that the effects of all the parts of the composition may be seen at once.

2. As to the actions, forced attitudes are to be avoided; and simple

ſimple nature ſhould be ſeen in her moſt advantageous poſtures.

The nudities ought not to be ſhewn in weak and lean figures, but rather you ought to ſeek for occaſions to cover them. A ſpecial care ought to be taken, that, in all human figures, the head be placed in the middle between the ſhoulders, the trunk on the haunches, and the whole on the feet.

As to the drapery, this muſt be ſo adjuſted, that it may appear real garments, and not ſtuffs thrown looſely on.

P.

HENRY PAERT, was firſt diſciple of Barlow, and afterwards of Stone, the famous copier. He was brought up a ſcholar, and ſpent ſome of his time at one of our univerſities. He painted under Mr Stone for ſeveral years, but afterwards fell to portrait painting, yet his talent ſeemed to be for copying. He copied, with great aſſiduity, the greateſt part of the hiſtory-pieces of the royal collection in England, in ſeveral of which he had good ſucceſs; what he ſeemed to want, was a warmth and beauty of colouring. He died in London, about the year 1697 or 1698.

Simple bodily PAIN: This affection or paſſion produces proportionally the ſame motions as that which is acute or extreme, but not ſo ſtrong.

The eye-brows do not approach and riſe ſo much; the eye-balls appear fixed on ſome object; the noſtrils riſe, but the wrinkles in the cheeks are leſs perceivable; the lips are further aſunder towards the middle, and the mouth is half open.

Extreme PAIN is an affection of the body, makes the eye-brows approach one another, and riſe towards the middle; the eye-balls are hid under the eye-brows; the noſtrils riſe and make a wrinkle in the cheeks; the mouth is half open and draws back: All the parts of the face are agitated in proportion to the violence of the Pain; and all the motions of the viſage will appear ſharp. See plate V.

PAINTING, is the art of repreſenting natural bodies, and giving them a kind of life by the turn of lines, and the degrees of colours.

Painting is ſaid to have had its riſe among the Egyptians, in repreſenting divers animals, &c. as hieroglyphics: But the Greeks, who learned the firſt rudiments of them, carried it to a great degree of perfection.

The Romans had alſo conſiderable maſters in this art, in the latter times of their commonwealth, and thoſe of their firſt emperors; but the inundation of the Barbarians, who ravaged and deſtroyed

deſtroyed Italy, reduced Painting again pretty near to its infant ſtate.

But in Italy it returned again to its ancient honour; and Cimabue, betaking himſelf to the pencil in the fifteenth century, tranſlated the poor remains of the declining art, from a Greek painter or two, into his own country Italy.

Some painters of Florence ſeconded him, the firſt of which was Ghirlandaio, maſter to Michael Angelo; Pietro Perugino, maſter to Raphael Urbin; and Andrea Verocchio, maſter to Leonardo da Vinci.

But theſe ſcholars far ſurpaſſed their maſters, and carried painting to a pitch, from which it has ever ſince been declining.

Theſe advanced painting not only by their own noble works, but alſo by the number of ſcholars they trained up, and the ſchools which they formed.

Michael Angelo, in particular, founded the Florentine ſchool; Raphael Urbin the Roman; and Leonardo da Vinci that of Milan.

To theſe muſt be added the ſchool of Lombardy, which became very conſiderable, much about the ſame time, under Gregory and Titian.

Beſides theſe Italian maſters, there were on this ſide the Alps others who had no communication with thoſe of Italy; as Albert Durer in Germany, Hans Holbein in Switzerland, and Lucas in Holland. But Italy, and eſpecially Rome, was the place where the art was practiſed with the greateſt ſucceſs, and which from time to time produced the greateſt maſters.

Caraches ſucceeded to the ſchool of Raphael, which has continued in its ſcholars almoſt to the preſent time.

M. Freſnoy divides the art of painting into three principal parts, invention, deſign, and colouring; to which a fourth is added by ſome, viz. diſpoſition.

M. Teſtling, painter to Louis XIV, divides it, ſomething more accurately, into the deſign or draught, the proportion, the expreſſion, the clair obſcure, the ordonnance, and the colouring. See theſe articles.

Painting is of various kinds, according to the materials uſed; the matter upon which they are applied; and the manner of applying them. See painting in OIL, LIMNING, and FRESCO.

To cleanſe old PAINTING. Make a ley of the aſhes of vine-branches, mixed with freſh urine; dip a ſponge in it and wipe it over, and it will much reſtore the fading, &c. or,

Take good wood-aſhes, ſearce them, or elſe ſmalt or powder-blue, and with a ſponge and fair water gently waſh the pictures you would cleanſe, taking great care of the ſhadows; when you have ſo done, dry them well with a clean cloth.

Then

Then varniſh it over again with ſome good varniſh, but ſuch as may be waſhed off again, if there be occaſion.

As for the varniſh, uſe either common varniſh, made with gum ſandrach diſſolved in linſeed oil, by boiling, or glair of eggs; and with your pencil go over the picture once, twice, or more with it, according as there ſhall be occaſion.

If your painting be on wainſcot, or any other joinery work, you may uſe wood-aſhes, and, mixing them indifferent thick with the water, rub over the painting with a ſtiff briſtle bruſh, as a ſhoe-bruſh, and ſcour, waſh, and dry it, and afterwards varniſh it with common varniſh.

But if your paintings are more curious, as figures of men, beaſts, landſcapes, flowers, fruits, &c. then take ſmalt only, and with a ſpunge dipped in water cleanſe it gently, and afterwards waſh it in fair water, and, having dried it well, varniſh it, and it will very conſiderably recover the luſtre of the pictures.

But this cleanſing of paintings ought not to be done too often, viz. not except they are very much ſoiled, becauſe too frequent cleanſings of this kind will by degrees wear off part of the colours; therefore you ſhould endeavour to preſerve their beauty by keeping them from ſmoke, duſt, flies, &c.

All pictures, but chiefly ſuch in which mixtures of white lead are uſed, will be apt to grow tawny, to tarniſh or grow ruſty, as may be ſeen in all old pictures.

In order to prevent this, expoſe them to the hot ſun three or four days in May or June; and by that means the ill colour will be much drawn off, and the painting appear more freſh and beautiful; if this be done annually, it will preſerve them wonderfully.

PALLAS. See MINERVA.

PALLET, with painters, is a little oval table of wood or ivory, very thin and ſmooth, on and around which the painters place the ſeveral colours they have occaſion for, ready for the pencil.

The middle ſerves to mix the colours on, and to make the teints required in the work. It has no handle, but, inſtead thereof, a hole at one end to put the thumb through to hold it by.

PALLET, alſo implies the end of a ſquirrel's tail, ſpread abroad, and faſtened to a flat pencil ſtick, which is broad at one end and ſplit, much like to an houſe-painter's graining tool, but much leſs.—It ſerves for taking up and laying on whole leaves of gold or ſilver at a time, and ſerves for all the ſame uſes that cotton does with gilders.

PALLET, with potters, is a wooden inſtrument, almoſt the only one they uſe for forming, beating, and rounding their works. They have ſeveral kinds; the largeſt are oval with a handle; others

others are round or hollowed triangularly; others in manner of large knives, ſerving to cut off what is ſuperfluous on the moulds of their works.

Giacomo PALMA, called *Palma Vecchio*, born in 1508, ſtudied at Rome, and after inſtructed by Titian, lived at Rome and Venice, excelled in hiſtory and portraits; died in 1556, aged forty-eight years.

Giacomo PALMA, jun. called *Giovane Palma*, born in the year 1544, ſcholar of his father Antonio, nephew of old Palma; and ſtudied Titian and Tintoret, lived at Rome and Venice; excelled in hiſtory; died in the year 1628, aged eighty-four.

PAN, was accounted by the ancients the god of the flocks of ſheep and ſhepherds; and was repreſented in the proportions of a man from the middle upwards, of a ruddy and ſanguine countenance, and very hairy body; his breaſt covered with the ſkin of a ſpotted doe or leopard, holding in one hand a ſhepherd's hook, and in the other a pipe; but, from the middle downwards, having the perfect ſhape of a goat, in thighs, legs, and feet.

PARCÆ, or the *Deſtinies*, called the three fatal ſiſters, named Clotho, Lacheſis, and Atropos.

Clotho is feigned, by poets, &c. to take the charge of the birth and nativities of mortals; Lacheſis of all the reſt of their life; and Atropos of their death or departure out of this world.

They are all three painted ſitting on a row, very buſily employed in their ſeveral offices; the youngeſt ſiſter drawing out of a diſtaff a reaſonably large thread; the ſecond winding it about a wheel, and turning the ſame, till it becomes little and ſlender; the eldeſt, which is aged and decrepit, ſtanding ready with her knife, when it is ſpun, to cut it off.

And they are deſcribed inveſted with white veils and little coronets on their heads, wreathed about with garlands, made of flowers of Narciſſus.

PARSIMONY, is repreſented, in painting, &c. by a virago modeſtly dreſſed, with a pair of compaſſes, and a purſe full of money cloſe ſhut in her hand, with a label with this motto, Servat in melius.

Her virile age declares her capable of reaſon and diſcretion, to join uſefulneſs with honeſty; her plain dreſs, hatred of ſuperfluous expence; the compaſſes, order and meaſure of all affairs; the purſe with the motto, that it is a greater honour to keep what one has, than to acquire or purchaſe what one has not.

PA *Agoſtino* PARISINO, who engraved the eighty-one images deſigned by Florio Macchi, found in a book intitled the emblem of Paul Maulii, uſed to mark his works with the preceding mark.

Gioſeppi PASSARI, born in the year 1654, lived at Rome, excelled

excelled in history; died in the year 1714, aged sixty years.

P *Bernard* PASSERO, an engraver of all subjects, used this mark.

Bartolomeo PASSEROTTO, scholar to Jacobo Vignuola, Tad. Zucchero, &c. lived at Rome, excelled in history and portraits.

PASSIONS, says Monsr. le Brun, are motions of the soul, residing in the sensitive part thereof, which makes it pursue that which the soul thinks for its good, or avoid that which it thinks hurtful to it; and for the most part whatsoever causes Passion in the soul, makes some action in the body.

It then being allowed that the greatest part of the Passions of the soul produce bodily actions, it is necessary we should know what those actions of the body are, which express the Passion, and what action is. See the manner of expressing the several Passions under their proper names.

PASTE, a composition for imitating precious stones.

Method of making very hard PASTES *with sulphur of saturn, and to give them all the colours of precious stones.* Take ten pounds of natural crystal prepared, with six pounds of salt extracted from wolverine of Rochetti purified, pounded, and well searced; to these add two pounds of sulphur saturni chymically prepared, (see SULPHUR *Saturni*) mix these well together, put them into an earthen glazed pan, and cast on them a little common fair water, to reduce them into a lump; divide it into several parcels, about three ounces each, making a hole in the middle of each, the better to dry them in the sun. Being well dried, put them into an earthen pot well luted; calcine them and search through a fine sieve; put this powder into a glass furnace to melt and purify for three days; then cast the matter into the water; and, after you have dried it, put it again into the same oven, there to melt and purify for fifteen days, that it may be without spot, and acquire the colour of precious stones.

The crystalline matter may be tinged of several colours, viz. emerald by means of copper thrice calcined; topaz by means of prepared zaffer; and so of others, as the reader will find under their proper articles.

The paste will have finer colours than the true natural stones, and approach near to their hardness, particularly that of the emerald.

PASTIL, with painters, &c. a sort of paste made of several colours, ground up with gum water, either together or separately, in order to make crayons to paint with, either on paper or parchment; also the crayons themselves are called pastils. See CRAYONS.

PASTIME,

PASTIME, is repreſented, in painting, in purple trimmed with gold.

PATIENCE, is repreſented, in painting, &c. by a woman of mature age, ſitting on a ſtone wringing her hands, her naked feet upon thorns, a heavy yoke upon her ſhoulders.

The yoke and thorns declare this invincible virtue to endure the pains of the body, and a wounded ſpirit expreſſed by her wringing her hands; Patience ſuffers adverſity with a conſtant and quiet mind, which is nothing but an invincible virtue, declared in ſupporting the troubles of body and mind, repreſented by the thorns.

P. B. F. } ſignifies Paulus Blancus fecit & incidit.
B. B. }

P. C. ſignifies Paul Caliari, i. e. Paul Veroneſe painter and inventor.

PEACE, is repreſented, in painting, like a lady, holding in her right hand a wand or rod, downwards towards the earth, over a hideous ſerpent of ſundry colours; and with her other hand covering her face with a veil, as loth to behold ſtrife or war.

PEARL, a hard white ſhining body, uſually of a roundiſh figure.

PEARLS, though eſteemed of the number of gems by our jewellers, and highly valued, not only at this time, but in all ages, are but a diſtemper in the creature that produces them analogous to the bezoars, and other ſtony concretions in the ſeveral animals of other kinds.

The fiſh, in which Pearls are uſually produced, is the Eaſt Indian Pearl oyſter, as it is commonly, though not very properly called. It is a very large and broad ſhell, of the bivalve kind, ſometimes meaſuring twelve or fourteen inches over, but thoſe of two inches are more frequent; it is not very deep; its colour on the outſide is a duſky brown, with ſome faint admixture of greeniſh within; it is of a beautiful white, with ſhades of ſeveral other colours as expoſed in different directions to the light; it is deſcribed by authors under the name of concha margaritifera, and concha mater unionum. Liſter has figured it under the name of concha margaritifera pleriſque antiquis Indi. Beſides this ſhell there are many others found to produce Pearls; the common oyſter often has them, and the muſcle, the pinna marina, and ſeveral other of the bivalves, as well as the nautilus Græcorum, and ſeveral other ſhells of other genera. The Pearls of all theſe ſhells are often very good, but thoſe of the true Indian berberi, or Pearl, are in general ſuperior to all.

We have Scotch Pearls frequently as big as a tare, ſome as big as a large pea, and ſome few of the ſize of a horſe bean; but the

theſe are uſually of a bad ſhape, and of little value in proportion to their weight.

The fineſt, and what is called the true ſhape of the Pearl, is a perfect round; but if Pearls of a conſiderable ſize are of the ſhape of a pear, as is not unfrequently the caſe, they are not of leſs value, as they ſerve very luckily for ear-rings and other ornaments. Their colour ought to be a pure white, and this not a dead and lifeleſs but a clear and brilliant one; they muſt be perfectly free from any foulneſs, ſpot, or ſtain, and their ſurfaces muſt be naturally ſmooth and gloſſy; for they bring their natural poliſh with them, art being unable to do any thing like it.

Pearls of whatever ſize, when they are rough on the ſurface, or of irregular figures, as hollow, flat, or undulated, are of little value; and they are liable alſo to be greatly debaſed by a tinge of yellow or blue; ſometimes they are found greeniſh, reddiſh, or browniſh; the two laſt ſtains wholly deſtroy their value; as to thoſe that are a little yellowiſh, the Orientals who value Pearls full as much as we do, and will pay as dear for them, do not like them the worſe for a ſlight tinge of that colour, provided they are perfectly bright, and of a fine natural poliſh.

Artificial PEARLS. Making of falſe Pearls is now much uſed in France, and is the curious invention of the Sieur, that ingenious artiſt having obſerved, that the ſcales of the bleak, a fiſh found plentifully in the river Marne, had not only all the luſtre of the real Pearl, but that after beating them to powder in water, or iſing-glaſs, they returned to their former brilliancy when dried; he bethought himſelf of ſetting a little maſs thereof in the cavity of a bead, which is a kind of opal or glaſs, bordering much on the colour of Pearl. With a little glaſs tube ſix or ſeven inches long, and a line and a half in diameter, but very ſharp at one end, and a little crooked, he introduced the matter by blowing it, after having taken up a drop with the pointed extremity; and, to ſpread it throughout the inner circumference, he contented himſelf to ſhake it gently for ſome time in a little oſier baſket lined with paper.

The pulveriſed ſcales reſume their luſtre as they dry, and, to increaſe this luſtre in winter, they lay the beads in a hair ſieve, or bolting cloth, which they ſuſpend to the cieling, and underneath, at ſix feet diſtance, lay heaps of hot aſhes. In ſummer they are ſuſpended in the ſame manner, but without any fire.

And now nothing remains, but to ſtop up the aperture, which is done with melted wax, conveyed into it with a tube, like that uſed in introducing the diſſolved ſcales.

After cleaning off the ſuperfluous wax, the Pearls are perforated with a needle, and then ſtrung; and thus they become necklaces,

laces, which the ladies now generally wear, in defect of true Pearl.

Another way of making PEARLS. Take Pearl three ounces, prepared ſalt one ounce, filtrated juice of lemons, ſo much as will cover them four fingers breadth; let it ſtand ſo long till it be a paſte; the glaſs being very cloſe ſtopped, ſhake all together five or ſix times a day, and when it comes to paſte put it into a glaſs with ſtrong ſpirit of vinegar; and lute another glaſs over it; digeſt it three weeks in a cool place, under the earth ſo long, till all be diſſolved; then mix it with a little oil of eggs or ſnail water, till it be like Pearl in colour; then put this paſte into ſilver moulds, and cloſe them up for eight days; after which, take them out and bore them, and put them again into the mould for eight days. This done, boil them in a ſilver porringer with milk; laſtly, dry them upon a plate in a warm place, where neither wind nor duſt may come, and they will be much fairer than any oriental Pearl.

The deſcription of the furnace for making PEARLS. See plate VIII.

A is the aſh-hole; you may add to it an hovel for ſucking in the air, which muſt be luted to it very firmly.

B is the inſide where the aſhes fall into; this ought to be lofty, for drawing in the air.

C is the grate, which muſt be very ſtrong iron bars.

D is the opening, through which the crucibles and fuel are put in; this ought to be well tempered iron, and luted with a very good lute, at leaſt three inches thick.

E is the chamber where the works are baked.

F is the coverlid of the furnace, which is to be vaulted firm, and made of the ſame earth.

G is the chimney, over which you may ſet ſeveral iron plates one above the other for drawing the air.

H is the hovel or ſhelving-place of iron for the aſh-hole.

I are funnels for the chimney-plates and the hovel.

K is a crucible.

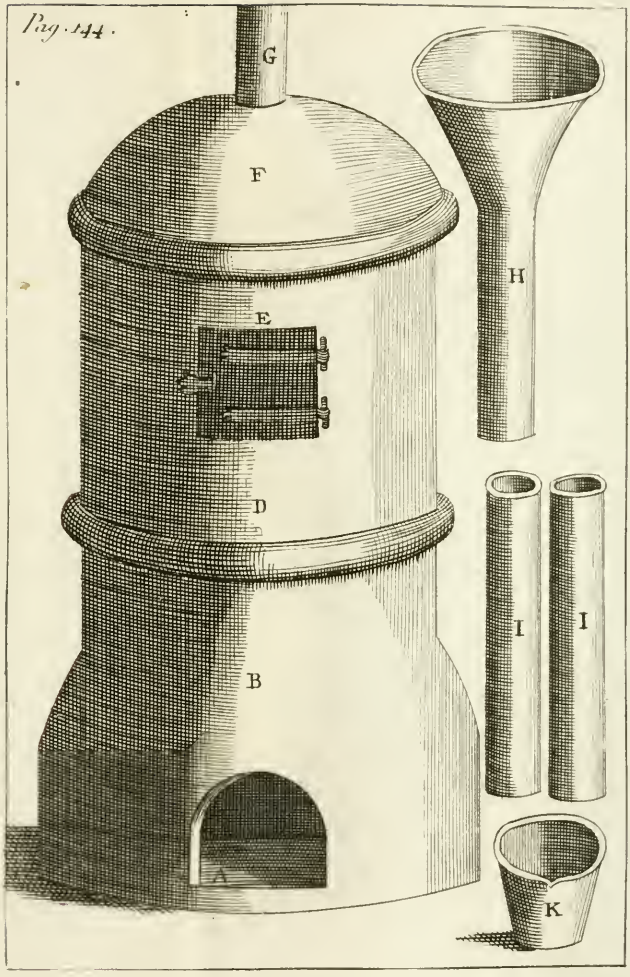
If this furnace be made five or ſix inches thick, it will bear all degrees of heat, and ſerve very conveniently for private perſons, by making it of a ſuitable largeneſs inſtead of the glaſs-houſe furnace; when you make your fire of wood, there will be no occaſion for the hovel of the aſh-hole.

Another method of making PEARLS. Take two pounds of thrice diſtilled vinegar, one pound of Venice turpentine, mix them together, and put the maſs into a glaſs cucurbit; fit to it the head and receiver, luting the joints; let them dry, and ſet it on a ſand furnace to diſtil the vinegar; keeping a gentle heat, leſt the ſtuff ſhould ſwell up.

Afterwards put the vinegar into another glaſs cucurbit, wherein hang a quantity, at diſcretion, of ſeed Pearl, ſtrung on a thread

of

Pag. 144.



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of ſilver or gold done about with a piece of very thin ſilk; they muſt be put in the middle of the body, ſo as not to touch the vinegar. This done, head your cucurbit with a blind head, and lute it very well; ſet it in a balneum mariæ well cloſed, there to remain for a fortnight; the heat of the B. will elevate the fumes of your vinegar, and they will continually circulate about the Pearl, and ſo ſoften and bring them to the conſiſtence of a paſte; which being once performed, take them off, and mould them in what form you pleaſe, long, round and pear like, and as big as you think fit; do this with moulds of fine plate gilded; you muſt not touch the paſte at all with your hands, but altogether work it with a plate ſpatula, which will fill the moulds; then bore them through with a porker's briſtle or gold wire, and ſo let them dry a little; then thread them again with gold wire, and ſet them in a cloſed glaſs, which lay in the ſun to dry them to a hardneſs; ſet them afterwards in a glaſs matraſs in a ſtream of running water, leaving it there for twenty days, and about that time they aſſume their firſt ſolidity and hardneſs.

To give them tranſparency and ſplendor, you muſt prepare ſome mercury water after the manner we ſhall preſcribe hereafter.

When you have taken them out of the laſt matraſs wherein they were for twenty days as the running water, hang them in a veſſel of glaſs where the mercury water is, and ſo they will moiſten and ſwell, and aſſume their oriental beauty; this done, ſhift them out of this water into a matraſs cloſed hermetically, for fear that any water ſhould be admitted into it; and ſo down with it into a well, leaving it there for eight whole days; then draw it up, open the matraſs, and you will have them as fine and good as any oriental Pearls whatever.

To make mercury water for giving tranſparency and ſplendor to PEARLS. You muſt take plate tin of Cornwall calcined, let the calx be very fine and pure, amalgamate one ounce thereof, with 12 ounces of prepared mercury well purified; waſh the amalgama with water, until the water remains clear and inſipid; then, drying the amalgama thoroughly, put it into a matraſs over a furnace, keeping ſuch a degree of heat as is required for ſublimation. When the matter is well ſublimated, take off the matraſs and let it cool, and ſo take out the ſublimate; to which add one ounce of Venice ſublimate, and grind them well together on a marble, ſo put them into another matraſs, cloſe it very well and ſet it topſy-turvy in a pail of water, and the whole maſs will in a little time reſolve itſelf into mercury water: This done, filtre it into a glaſs receiver, and ſet it on a gentle aſh-fire to coagulate, and it will be brought to a cryſtalline maſs. Take it off, and with a glaſs peſtle and mortar pound it very well to a very fine powder, which ſearce through a very fine ſieve, and put it into a well,

ſtopped matraſs in B. mariæ, letting it remain till it reſolve again in water; and this laſt ſhall be the mercury water, which you muſt preſerve to employ on your Pearl.

Another way to make theſe PEARLS. This is an eaſier way than the former; for by baking them, as we ſhall ſhew, you very much ſhorten the time which the preparation would elſe take up: However, you muſt not expect them ſo delicate and natural as the firſt, the cauſe whereof is eaſily enough conceived; for, theſe Pearls having enlarged themſelves in the water, as we already noted, it is reaſonable to believe the hardening them afterwards in the cold will be of a much more natural effect than if done with heat.

Take very fair oriental Pearl-ſeed for this purpoſe, and reduce it to an impalpable powder on a marble, to diſſolve afterwards in mercury water, or clarified juice of lemons: If this be not effected quick enough, ſet it in a cucurbit over warm aſhes, and be careful to take the cream, which in a little time will appear at the top, immediately off; ſo withdraw the diſſolution from the fire and let it ſettle a little. This done, pour it gently into another glaſs body and keep it apart, and you will have the Pearl in a paſte at bottom, with which fill your gilded plate moulds, made to what bigneſs or form you think fit, preſſing the paſte with the ſilver ſpatula, and ſo ſhut them up. Twenty-four hours after you muſt take and bore them through with a porker's briſtle, cloſe up the moulds and leave them in the oven in a paſte of barley dough, which being half baked, draw out and open, taking away all the Pearl, and ſteep them in the diſſolution juſt before directed, to be kept apart, putting them in and out ſeveral times; ſo cloſe them in their moulds, and bake them again with the like paſte as before; only let this laſt be almoſt burnt up before you draw it out; thus you will have the Pearl well baked and hardened.

This done, draw it out, open all the moulds, take away the Pearls and ſtring them on one or more gold or ſilver threads, ſteep them in mercury water for about a fortnight, after this dry them in the ſun in a well-cloſed glaſs body, ſo you will have a very fine and ſplendid Pearl.

Another way. Though this be a more common way than the precedent, we will not omit it, becauſe every one may have his choice to take that method which beſt ſuits with his apprehenſion or conveniency.

You muſt, as in the former, take very fair oriental ſeed Pearl ground to an impalpable powder and diſſolve it in alum water, then rack off that water and waſh off the paſte of Pearl which remains at bottom, firſt with ſome diſtilled waters, then in bean water, and ſet it in B. mariæ, or horſe-dung, to digeſt for a fort-

night; afterwards take out your veſſel, and, your matter being come to the conſiſtency of a paſte, mould up your paſte in the gilt ſilver moulds as before directed, bore them with a briſtle, ſtring them on gold or ſilver thread, and hang them in a very well cloſed limbec of glaſs, to prevent the air from coming in to ſpoil them.

Thus dried, lap them one by one in leaves of ſilver, and ſplit open a barbel as if you were to fry him, and ſo cloſe them all up in his body; make a paſte of barley meal, and bake him as you would do a batch of bread and no more, afterwards draw it out and let them dry.

To give a tranſparency and ſplendor to theſe Pearls, if you do not care to uſe the mercury water, inſtead thereof, take the herb gratuli ſqueeſed in water, put into this water ſix ounces of ſeed Pearl, one ounce of ſalt-petre, an ounce of roch alum, an ounce of litharge of ſilver, the whole being diſſolved; take your dried Pearls, heat them firſt, then cool them in this diſſolution; thus do for about ſix times at leaſt, heating and cooling them at this rate therein.

If your Pearl ſhould happen to fail of coming to a ſufficient hardneſs, you may correct and make them exceeding hard, by baking them a ſecond time after this manner:

Take two ounces of calamine, or lapis calaminaris, in impalpable powder, add to this two ounces of oil of vitriol, and two ounces of water of white of eggs; put all theſe into a retort, lute thereto a receiver, and let them diſtil, and you will have from it a very fair water, with which and ſome fine barley meal make a paſte; coffin your Pearls in this, and bake them in an oven as before, they will thus become exceeding hard and recover their natural tranſparency.

How to blanch fine PEARL. The beauty of Pearl conſiſts intirely in the brightneſs of their white colour, ſuch as are ſpotted or of a dark yellow being the leaſt eſtimable: You may however reſtore theſe laſt to a true luſtre and whiteneſs, by letting them ſoak and cleanſe firſt with bran water, then in milk-warm water; and laſtly ſteep them twenty-four hours in mercury water; this done, ſtring and hang them in a well-cloſed glaſs body to dry in the ſun as before.

The bran water is made by boiling two good handfuls of wheaten bran in a quart of water, until the water has drawn all the ſtrength thereof to it; and thus you are to uſe it afterwards for cleanſing the Pearl. You muſt ſtring and lay them all together in a glazed earthen pan, and pour thereon one third of this water; when they have ſoaked until the water be tolerably cooled that you may endure the heat, rub them with your hands gently to cleanſe them the better; continue ſo until the water

be cold, pour out this water, and pour on another third part of the bran water, ſtill boiling; and ſo uſe as the former, throwing it away when cold, then pouring on the remainder of the water, proceeding ſtill after the former manner; after this, juſt heat ſome fair water, and pour it on them to refreſh and take away the remains of bran; ſhift this water, pouring on more freſh warm water; do thus thrice without handling them; then lay them on a ſheet of very clean white paper to dry in a ſhade, and laſt of all ſteep them in your mercury water, to bring them to perfection.

To make counterfeit PEARL *very like the natural.* This receipt for making counterfeit Pearl has a much more fine and ſolid effect than any now-a-days in uſe.

Take chalk well purified and ſeparated from its groſſneſs and ſand, make paſte thereof, and ſo mould it up like Pearl in a mould for that purpoſe; pierce theſe through with a briſtle, and let them afterwards dry before the ſun, or, for more diſpatch, in an oven till they receive a juſt hardneſs; then ſtring them on a very fine thread of ſilver, colour them lightly over with bole armoniac, diluted in water of white of eggs; then drench them with a pencil and fair water, and ſo apply leaf ſilver all over and let them dry; this done, burniſh them with a wolf's tooth till they ſhine very finely.

To give them a true colour of Pearl, make a glue of parchment or rather vellum ſhavings, thus:

Waſh the ſhavings in warm water very well, and boil them after in a new pot to a thickneſs, and ſtrain this.

When you uſe this glue, you muſt warm it on a flat veſſel, then dip the ſtring of Pearls therein, ſo as not to fill the interval inches between each Pearl, but that every one may be done all over equally; after this let them dry. If you obſerve any baulk or defect on them, you may dip them in a ſecond time, and they will aſſume a finer and more tranſparent whiteneſs, and will have a certain darkneſs within and luſtre on the outſide, which compleats and brings them to the beauty of fine real Pearls. But, in this laſt caſe, if, inſtead of this glue, you dip or varniſh the Pearls after they are ſilvered, with a white varniſh, and ſo poliſh them, they will not only be fairer but more durable, like true Pearl.

Pearls are imitated, in painting in miniature, by laying on a mixture of white and a little blue, and ſhading them and ſwelling them with the ſame, but a little ſtronger.

Lay on a ſmall white ſpot, juſt in the middle of the light ſide, and on the other, between the ſhade and the border of the Pearl, give a touch of maſticote, to make a reflection; and underneath give them a caſt of the colour they are upon.

To dye woollen a PEARL *colour.* For one pound of ſtuff, take

one ounce of blue lac, half an ounce of blue wood, and half an ounce of burnt alum.

Firſt boil the blue wood for a quarter of an hour in a bag, then take it out, and, having powdered and ſifted the lac through a hair ſieve, ſkim the liquor, and ſtir it very well for a quarter of an hour, and help it with a quarter of an ounce of pot-aſhes.

To dye ſilk a PEARL *colour.* To every pound of ſilk take one ounce of orleans, diſſolve it in water, and wave the dry ſilk in it till it lathers; but it muſt not boil: Then rinſe and beat the ſilk clean, and take for every pound of ſilk four pounds of wild ſaffron very well preſſed, and four ounces of pot-aſhes, with half a pint of lime-juice. The Italian carnation or fleſh colour is prepared the ſame way.

Thomas PEMBROKE, was both a hiſtory and face painter, and diſciple of Laroon, whoſe manner he imitated; he painted ſeveral pictures for the Earl of Bath, in conjunction with one Mr. Woodfield, a diſciple of Fuller, and lately living. He died at London, in the year 1685, in the 28th year of his age.

Jacob PEN, was a Dutch hiſtory-painter in the reign of King Charles II. He was excellent both in drawing, colouring, and compoſition, and died in London about 50 years ago.

PENITENCE, is repreſented, in painting, by a woman in a vile, ragged, and baſe attire, infinitely deploring her being; and bemoaning herſelf in paſſionate fits above all meaſure, continually weeping.

Luca PENNI *Romano*, or *Luca* P. R. was Raphael Urbin's ſcholar, and brother to Fattorino; he invented very beautiful ſubjects, which were engraven by George Ghiſſi, of Mantua, in 1566. He uſed this mark.

George PENS, painter and engraver at Norimberg, together with Mark-Anthony Raimondi, engraved the works of Raphael, in Rome. He engraved after Aldograft's manner; his mark was ſometimes G. P. 1554.

PENSIVENESS, is repreſented, in painting, &c. by an old woman full of grief, in pitiful cloaths without ornament, ſitting upon a ſtone; her elbow upon her knees, and both hands under her chin; a tree by her without leaves.

Old, becauſe youth is jovial; ſhe is poorly clad, which ſuits with the tree without leaves; the ſtone ſhews that ſhe is barren in words and deeds: But, though ſhe ſeems liſtleſs in the winter in politic actions, yet, in the ſpring, when there is need of wiſe men, then penſive men are found by experience to be judicious.

PERFECTION, is repreſented, in painting, &c. by a fair lady in a veſt of gold gauſe, her boſom unveiled, her body is in

the zodiac, her ſleeves turned up to her elbows, making a perfect circle with the left.

The golden robe denotes perfection; the naked breaſts, the chiefeſt part thereof to nouriſh others; the circle, the moſt perfect figure in the mathematics.

PERIDORE, is a precious ſtone, a ſort of a clear topaz, of a gold-colour light, but which is notwithſtanding beautiful.

To imitate it well, take two ounces of natural cryſtal in powder, ſix ounces of minium, an ounce of fine ſalt of tartar, and eight grains of verdigreaſe; reduce the whole to an impalpable powder by pounding in a mortar, ſearce it through a fine ſieve. The ſame circumſtances are to be obſerved in baking this ſtone as in the jacinth, which ſee, by reaſon of the minium that enters into the compoſition of the one and the other, and you will have a very fine Peridore.

F. *Francis* PERRIER, painter and engraver, publiſhed ſeveral Roman antiquities in 1635, with this mark, as in the index of Roſſi's plates.

PERSECUTION, is repreſented, in painting, &c. by a woman clad in verdigreaſe and ruſt colours, wings upon her ſhoulders, in a poſture as if ſhe would let fly an arrow; with a crocodile at her feet

The wing ſhew its being evermore ready and quick in doing miſchief; the bow, her ſending out bitter words; the crocodile, becauſe it annoys only the fiſh that flee from it; ſo Perſecution deſires nothing more than to find thoſe who do not reſiſt it by their own ſtrength

PERSPECTIVE, conſiſts of two parts, ſpeculative and practical. The ſpeculative part, or theory, makes a conſiderable branch of direct optics in regarding the appearances of all viſible objects as they exhibit themſelves to the naked eye, and reducing thoſe appearances to mathematical rules and theorems. The practical part is an application of theſe rules to the actual deſcription of thoſe appearances; the doing of which, in a moſt eaſy and uniform manner, for all different caſes, is all that can be expected from it.

Without the knowledge of Perſpective a picture is drawn as it were by gueſs, without any certain determinate points or lines, or any other rules than the painter's eye to guide him; here the ſhape and ſituation of his objects are not previouſly determined, but left at large to be modelled, as they may happen in the progreſs of his work to appear to ſtand beſt; this indeed is the too common way in painters work, as it allows them all kind of latitude in their deſigns, or rather permits them to paint without any ſettled deſign at all, but as it ſhall happen. If a figure, on examination, appears too large for its diſtance, it is by the ſtroke

of

Fig. 1 Square.

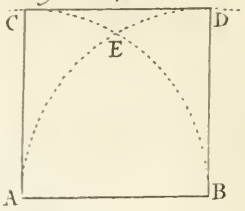
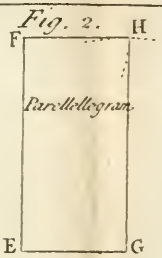


Fig. 2.



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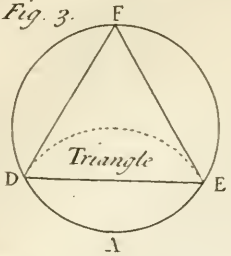


Fig. 4. Pag. 151.

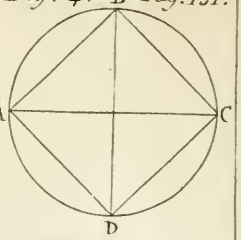


Fig. 5

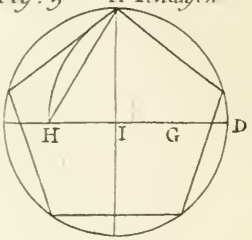


Fig. 6 Hexagon

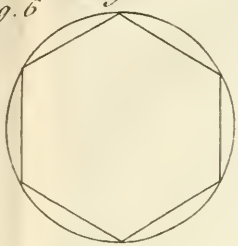


Fig. 7

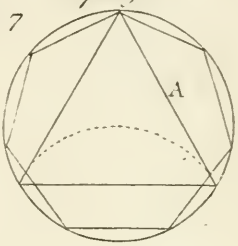


Fig. 8. Octagon

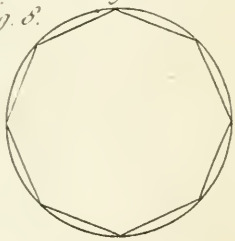


Fig. 9 Enneagon

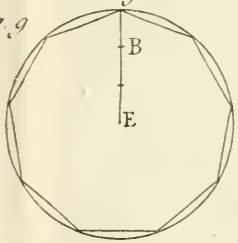


Fig. 10.

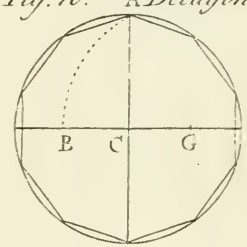


Fig. 11. Undecagon

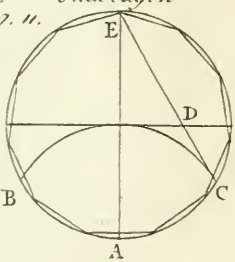


Fig. 12. Dodecagon

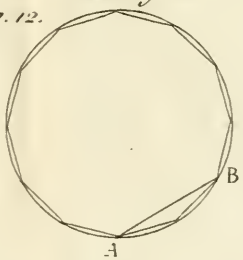


Fig. 13.

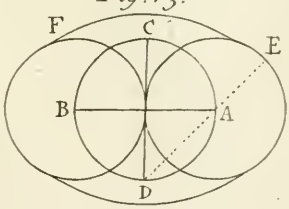


Fig. 14.

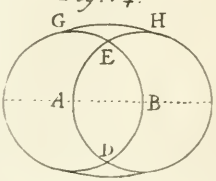


Fig. 15.

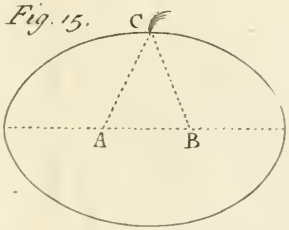
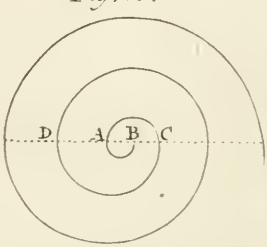


Fig. 16.



of a pencil brought to ſtand on nearer ground; mountains are removed from place to place by raiſing or lowering their foundations, till, at laſt, the painter fixes them as ſuits beſt with their bulk and ſtrength of colour which he firſt gave them. As he has no fixed deſign to work by, all he can do is to make his eye the judge, and to correct what, on view, appears to him amiſs; but often, not knowing how to do it, he makes it worſe, and is obliged, after many unſucceſsful trials, to hide that part under a veil, or blot it quite out, and put ſomething elſe in its place that may look better. As he is not ſure of what he really intends, he is obliged to keep others as much in the dark as himſelf, by induſtriouſly avoiding all regular figures and ſtraight lines, and leaving the boundaries of this object as uncertain as may be; and thus at length the piece is finiſhed, and the painter almoſt as ignorant of the true original or model of his performances as the greateſt ſtranger; and, if in this manner it can be compleated without any obvious and groſs faults in it, he is much more beholden to chance and good fortune than to the rules of the art he profeſſes.

On the other hand, a picture drawn by the rules may be eaſily reduced to its model; nothing is ambiguous or uncertain in it but what is ſo in nature. The true diſtance, height, and breadth of every object may be meaſured by a line; the grounds and buildings may be reduced to their original plan, and from thence a new picture may be drawn of the ſame things in any other view. A painter working by theſe rules knows what he is about, and lets the ſpectator know it too; he is in no danger of falling into abſurdities, nor does he ſtand in need of blinds and ſhift to cover his ignorance; if any part of his work hath not a good effect, he knows the fault lies in the model or deſign, and how, and where, to correct it; and has the pleaſure of working with certainty without the ſlavery of being obliged to grope out every ſtep of his way, not knowing in the end whether he is right or wrong.

The general practice of PERSPECTIVE. 1. Let every line, which, in the object or geometrical figure, is ſtraight, perpendicular, or parallel to its baſe, be ſo alſo in its ſcenographic delineation.

2. Let the lines, which in the object, return at right angles from the foreright ſide, be drawn ſcenographically from the viſual point.

3. Let all ſtraight lines, which in the object return from the foreright ſide, run in a ſcenographic figure into the horizontal line.

4. Let the object you intend to delineate, ſtanding on your right hand, be placed alſo on the right hand of the viſual point,

and that on the left hand, on the left hand on the ſame point; and that which is juſt before, in the middle of it.

5. Let thoſe lines which are, in the object, equidiſtant to the returning line, be drawn in the ſcenograghic figure, from that point found in the horizon.

6. In ſetting off the altitude of columns, pedeſtals, and the like, meaſure the height from the baſe line upward, in the front or foreright ſide; and a viſual ray down that point in the front ſhall limit the altitude of the column or pillar, all the way behind the foreright ſide, or orthographic appearance, even to the viſual point.

This rule you muſt obſerve in all figures, as well where there is a front or foreright ſide, as where there is none.

7. In delineating ovals, circles, arches, croſſes, ſpirals, and croſs arches, or any other figure in the roof of any room, firſt draw ichnographically, and ſo, with perpendiculars from the moſt eminent points thereof, carry it up into the cieling; from which ſeveral points carry on the figure.

8. The center, in any ſcenographic regular figure, is found by drawing croſs lines from oppoſite angles; for the point where the diagonals croſs is the center.

9. A ground plane of ſquares is alike, both above and below the horizontal line; only the more it is diſtant above or beneath the horizon, the ſquares will be ſo much the larger or wider.

10. In drawing a Perſpective figure, where many lines come together, you may, for the directing of your eye, draw the diagonals in red, the viſual lines in black, the perpendiculars in green, or other different colour, from that which you intend the figure ſhall be of.

11. Having conſidered the height, diſtance, and poſition of the figure, and drawn it accordingly, with ſide or angle againſt the baſe; raiſe perpendiculars from the ſeveral angles or deſigned points from the figure to the baſe, and tranſfer the length of each perpendicular, from the place where it touches the baſe, to the baſe on the ſide oppoſite to the point of diſtance; ſo will the diametrals drawn to the perpendiculars in the baſe, by interſection with the diagonals, drawn to the ſeveral tranſferred diſtances, give the angles of the figures; and ſo lines drawn from point to point will circumſcribe the ſcenographic figure.

12. If in a landſcape there be any ſtanding waters, as rivers, ponds, and the like; place the horizontal line level with the fartheſt ſight or appearance of it.

13. If there be any houſes or the like in the picture, conſider their poſition, that you may find from what point in the horizontal lines to draw the front and ſides thereof.

14. In deſcribing things at a great diſtance, obſerve the proportion,

portion, both in magnitude and distance, in draught, which appears from the object to the eye.

15. In colouring and shadowing of every thing, you must do the same in your picture, which you observe with your eye, especially in objects lying near; but, according as the distance grows greater and greater, so the colours must be fainter and fainter, till at last they lose themselves in a darkish sky colour.

16. The catoptrics are best seen in a common looking-glass, or other polished matter; where, if the glass be exactly flat, the object is exactly like its original; but if the glass be not flat, the resemblance alters from the original; and that, more or less, according as the glass differs from an exact plane.

17. In drawing catoptric figures, the surface of the glass is to be considered, upon which you mean to have the reflection: For which you must make a particular ichnographical draught or projection; which on the glass must appear to be a plain full of squares, on which projection transfer what shall be drawn on a plane, divided into the same number of like squares; where, though the draught may appear very confused, yet the reflection of it on the glass will be very regular, proportional, and regularly composed.

18. The dioptric or broken beam may be seen in a tube thro' a crystal or glass, which hath its surface cut into many others, whereby the rays of the object are broken.

For to the flat of the crystal or water the rays run straight; but then they break and make an angle, the which also by the refracted beams is made and continued on the other side of the same flat.

19. When these faces on a crystal are returned towards a plane placed directly before it, they separate themselves at a good distance on the plane; because they are all directed to various far distant places of the same.

20. But, for the assigning to each of them a place on the same plane, no geometric rule is yet invented.

Of the uses of PERSPECTIVE. 1. Perspective then is a science or rather an art absolutely necessary to one who would draw well, engrave, etch, carve, or paint; and which men of those professions ought not to want: Yet they are not to be so wholly subject to its precepts, as to enslave these arts to its rules.

2. It is to be used when it leads you pleasingly into the beauties of your work, and can be helpful to you in your design; but, when it will not be useful to these purposes, you are to pass it by, lest it should misguide you, by leading you to something that is repugnant to your peculiar art.

3. Perspective cannot of itself be called a certain rule, but it is to be used with judgment, prudence, and discretion; for if it be

be perfectly underſtood by you, and yet you uſe it too regularly, though you may effect ſuch things as are within the rules of art, yet the work will not always be pleaſing to the ſight.

4. The greateſt painters who have made uſe of it, if they had rigorouſly obſerved it in their deſigns, they had much diminiſhed the glory to which they attained, and to which time will give a kind of immortality.

5. Such as follow its precepts too cloſely, may indeed make things regularly true; but will be very deficient in that harmonious excellency, that exquiſite beauty and that charming ſweetneſs, which would otherwiſe have been found in them.

6. The architects and ſtatuaries of ancient times did not always find it to their purpoſe; it was not their prudence to trace the geometrical part ſo exactly as the rules of Perſpective do require.

7. If you would imitate the frontiſpiece of the Rotunda, according to the rules of Perſpective, you would err very much; for the columns which are at the extremities have more in diameter than thoſe that are in the middle.

8. The corniſh of the palazzo Farneſe, which looks ſo beautifully, if beheld from below, yet, being more nearly viewed, is found to want very much of its juſt proportion.

9. In the pillar of Trajan, the higheſt figures are much greater than thoſe which are below; which, by the rules of Perſpective, ſhould be quite contrary: Here they increaſe according to the meaſure of their diſtance.

10. There is a rule which teaches the making figures after that manner; but it is no rule in Perſpective, though it is found in ſome books of that art; and it is never to be made uſe of, but when it is for your purpoſe, viz. when it may eaſe the ſight and render the object more agreeable.

11. The Farneſian Hercules, its baſe is not on the level, but on an eaſy declivity on the advanced part; the reaſon of which is, that the feet of the figure may not be hidden from the ſight, but appear more pleaſing to the eye.

12. And this is the true reaſon, that theſe great men have ſometimes ſtepped aſide from the geometrical rules of Perſpective, not in ſlight or contempt of the art, but for the abſolute pleaſing of the ſenſe of ſight.

Methods of deſcribing geometrically figures neceſſary in PERSPECTIVE. 1. A line, as A B, plate IX. fig. 1, being given to form a ſquare on; ſet one foot of the compaſſes in the point A, and, extending the other the length A B, deſcribe the arch B C; then, from the point B, deſcribe another arch A D, interſecting the former in E; and from E ſet off half the arch E A, or E B, outwardly, to D and C, to which points, drawing lines from A B, &c. the ſquare is formed.

Or

Or thus: Upon the given line A B, erect a perpendicular A C equal to A B; then, taking the length A B in the compaſſes, ſet one foot in B, and with the other deſcribe an arch: Having done the like from the point C, the interſection of the two arches will be the point D, which gives the ſquare A B C D.

2. To deſcribe a parallelogram or long ſquare. On the term E, fig. 2, of the given line E F, erect a perpendicular, either greater or leſs than the ſame as E G: Then, taking E G in the compaſſes, ſet one foot in F, and with the other deſcribe an arch; alſo take E F in the compaſſes, and, ſetting one foot in G, deſcribe a ſecond arch, cutting the former in H: This will produce the parallelogram required.

Of circular polygons, which are figures of ſeveral angles inſcribed in circles.

3. To deſcribe an equilateral triangle; open the compaſſes to the radius of the circle, ſet one foot in the point A, fig. 3, and deſcribe the arch D E, and draw a right line D E, which will be the ſide of the triangle D E F.

4. For a ſquare; draw two diameters at right angles, and join their extremities: Thus you will have the ſquare A B C D, fig. 4.

5. For a pentagon or five-angle; draw two diameters, and take D G, fig. 5, half the ſemi-diameter D I, and from the point G with the interval G A, deſcribe the arch A H: The chord of which is the ſide of the pentagon.

6. For the hexagon or ſix-angle; the ſemi-diameter is the ſide of the hexagon, fig. 6.

7. For the heptagon or ſeven-angle; take half a ſide of the equilateral triangle, fig. 7.

8. For the octogon or eight-angle; take half a quadrant of the circle, fig. 8.

9. For the enneagon or nine-angle; take two thirds of the ſemi-diameter for the ſide, as E B, fig. 9.

10. For the decagon or ten-angle; divide the ſemi-diameter into two in the point G, fig. 10; and, from G with the interval G A, deſcribe an arch A B; the part of the diameter B C will be the ſide of the decagon.

11. For the un-decagon or eleven-angle; draw two diameters or right angles, and from the point A, fig. 11, with the interval of a ſemi-diameter, deſcribe an arch B C; then, from the point of interſection C, draw a line to E, and the portion C D will be the ſide of the un-decagon.

12. For the do-decagon or twelve-angle; divide the arch of a hexagon A B, fig. 12, into two equal parts; and the chord of the moiety will be the ſide.

13. An oval is formed divers ways, in all which the figure is either

either a compound of ſeveral portions of circles, or it is one line drawn from two centers. The moſt uſual methods are theſe: Firſt, deſcribe a circle and draw two diameters in it as A B, C D, fig. 13; then, from the points A B, draw two other circles equal with the firſt; then, from the point D, draw a line through the center of the laſt circle to the circumference E. When you have done this, ſet one foot of the compaſſes in D, and with the other take the interval E, and deſcribe the arch E F, and, doing the like on the other ſide, the oval will be formed.

14. For a rounder oval; draw a ſingle line, and from A, fig. 14, as a center, deſcribe a circle, the interſection of which, with the right line in the point B, will be the center of another circle. Then, to form the oval, take in the compaſſes the whole diameter of one of the circles, as from A to F; and in one of the interſections of the circles, as D, ſetting one foot of the compaſſes, with the other draw the arch G H: Do the like from the point E.

15. There is alſo an eaſier and more uſeful manner of deſcribing ovals than any of the preceding ones: The ſame rule ſerving for all forms, long, narrow, broad, and ſhort, &c.

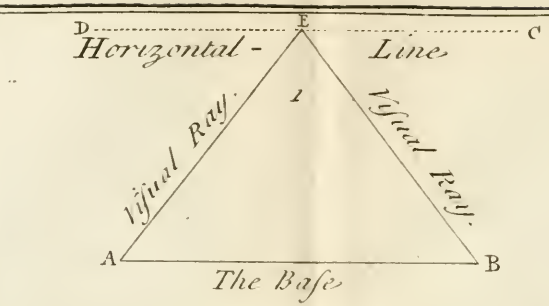
Thus, ſet two nails or pins in a right line, A B, fig. 15, to ſerve as a center; and about theſe tie a thread of the length and width of the oval required, as A B C; hold the thread tight with a pen or pencil, and turn it about till you arrive where you began. If you would have it a long one, ſet the center farther apart; and, if a ſhort one, do the contrary: For, if the nails ſtand cloſe together, the figure will be a circle.

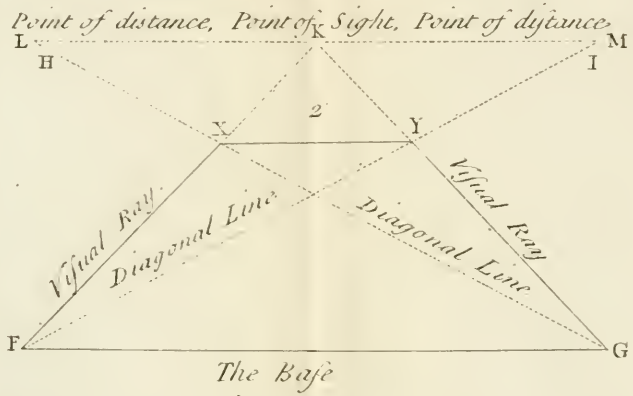
16. For a ſpiral, or volute; take two points in a line, A B, fig. 16. the points to ſerve one after another as centers. As, for inſtance, having drawn the ſemicircle A B, ſet one foot of the compaſſes in B, and open the other to the length A B, and deſcribe a ſemicircle A C; then, ſet one foot in A, take the interval A C, and draw the ſemicircle C D; and this continue as long as you pleaſe, ſtill ſhifting centers.

Of lines and points in PERSPECTIVE. The terreſtrial line, baſe line, or line of the plan, is the line an object is placed or ſtands upon, of which each object has its particular one, and the whole draught a general one.

This is always parallel to the horizon, as is ſeen in A B of the firſt figure of plate X, F G of the ſecond, and D A of the third; and ſometimes ſerves to determine the lengths and breadths; particularly that at the bottom of the piece, whereto all the meaſures are to be accommodated, as will be ſhewn hereafter.

The point of ſight, point of the eye, principal point, or point of PER-


D
E
C
Horizontal - Line
1
Visual Ray
Visual Ray
A
B
The Base


Point of distance, Point of Sight, Point of distance
L
K
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2
X
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Visual Ray
Diagonal Line
Diagonal Line
Visual Ray
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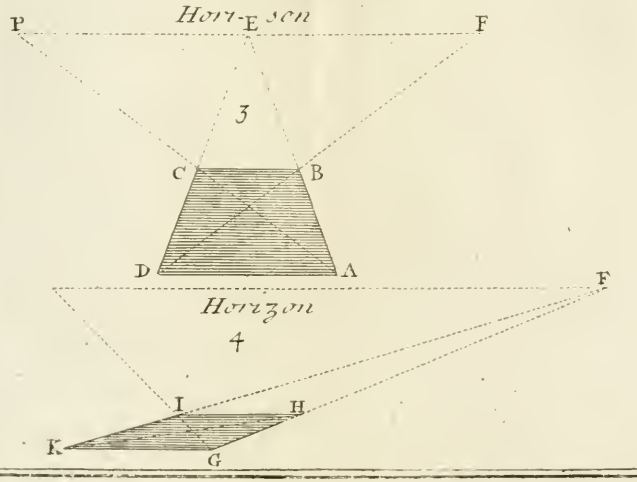
G
The Base


P
Horizon
E
F
3
C
B
D
A
F
Horizon
4
I
H
K
G

PERSPECTIVE, is a point in the axis of the eye, or in the central ray, where the ſame is interſected by the horizon.

Thus the point E in the firſt figure, plate X, is the point of ſight in the horizon C D, wherein all the viſual rays meet.

It is called the point of the eye, or ocular point, becauſe directly oppoſed to the eye of the perſon who is to view the piece.

Of the point or points of diſtance.— Theſe are a point or points, for there are ſometimes two of them, placed at equal diſtance from the point of ſight.

They are thus denominated, by reaſon the ſpectator ought to be ſo far removed from the figure or painting, and the terreſtrial line, as theſe points are from the point of the eye, and are always to be in the horizontal line.

Thus, H I, ſee plate X. fig. 2, being the horizon, and K the point of ſight, L and M are points of diſtance, ſerving to give all the ſhortenings.

Thus, ex. gr. if from the extremes of the line F G you draw two lines to the point K, and from the ſame points draw two lines to the points of diſtance M and L, where theſe two lines G L and F M cut the lines F K and G K in the points X and Y will be the line of depth, and the ſhortening of the ſquare, of which F G is the ſcale and baſe. The lines drawn to the points of ſight are all viſual rays, and thoſe drawn to the points of diſtance all diagonals.

Of the point of front.— The point of direct view, or of the front, is when we have the object directly before us, and not more on one ſide than the other; in which caſe it only ſhews the foreſide, and, if it be below the horizon, a little of the top too; but nothing of the ſides, except the object be polygonous.

Thus, the plan A B C D, plate X. fig. 3, is all in front, and, if it were raiſed, we ſhould not ſee any thing of the ſides A B or C D, but only the front A D: The reaſon is, that the point of view E, being directly oppoſite thereto, cauſes a diminution on each ſide; which, however, is only to be underſtood where an elevation is the object; for, if it be a plan, it ſhews the whole, as A B C D.

Of the ſide point.—The point of oblique view, or of the ſide, is when we ſee the object aſide of us, and only as it were aſlant, or with a corner of the eye; the eye however being all the while oppoſite to the point of ſight: In which caſe we view the object laterally, and it preſents us two faces or ſides.

For inſtance, if the point of ſight be in F, plate X. fig. 4, the object G H I K will appear athwart, and ſhew two faces G K and G H, in which caſe it will be a ſide point.

The practice is the ſame in the ſide points as in the front points;

points; a point of ſight, points of diſtance, &c. being laid down in the one as well as the other.

Definitions in PERSPECTIVE. Ichnography, is the figure of the platform in Perſpective, or the plan any thing is to be raiſed upon: Thus, A B C D is the ichnography or plan of a ſquare body. See plate XI. fig. 1.

Orthography in PERSPECTIVE, is the figure of the front or foreſide of an object, as an houſe, &c. Or it is the figure of an object, as an houſe, &c. directly oppoſite to the eye. Thus E F G H is the orthography or fore-part of a cube or houſe. As the ichnography repreſents the plane, the orthography repreſents the ſide oppoſite to the eye. See plate XI. fig. 2.

Scenography, is what exhibits the object quite raiſed and perfect, with all its diminutions and ſhadows; both in front, the ſides which may be ſeen, and top: Thus I K L M N O P is a ſcenography, or perfect cube. This is the whole, and comprehends all the other parts. See plate XI. fig. 3.

Why objects appear the ſmaller as they are at a greater diſtance.

Things appear according to the angle of the eye wherein they are ſeen, and this angle is taken at the eye, where the lines terminating the objects meet.

The eye A, plate XII. fig. 1, for inſtance, viewing the object B C, will draw the rays A B and A C, which give the angle B A C; ſo that an object viewed under a greater angle will appear large, and another under a leſſer angle, little.

Now, it is certain, that, among equal objects, thoſe at the greateſt diſtance will appear under the ſmalleſt angle; and, conſequently, in all Perſpectives, the remoteſt objects muſt be made the ſmalleſt: As, for example, if the eye be in A, the object B C which is the neareſt, will appear the biggeſt, becauſe ſeen under the greateſt angle; and the ſecond, third, fourth, and fifth objects, will all appear ſmaller and ſmaller, though really all equal; inaſmuch as the angles diminiſh in proportion as the objects recede.

If the eye were removed into M, K L would appear the largeſt, and B C, in this latter caſe, no bigger than N O.

The ſecond figure of plate XII. is a ſequel of what we have advanced; for, ſuppoſing the objects to appear ſuch as is the angle they are ſeen in, it follows, that, if ſeveral lines be drawn between the ſides of the ſame triangle, they will all appear equal: Thus all the lines compriſed between the ſides O N, O P, of the triangle N O P, will appear equal to each other, and, as objects comprehended under the ſame angle ſeem equal, ſo all comprehended under a greater angle ſeem greater, and all under a ſmaller, ſmaller.

Thus

Fig. 1.

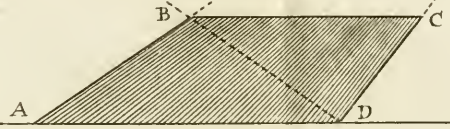


Fig. 2.

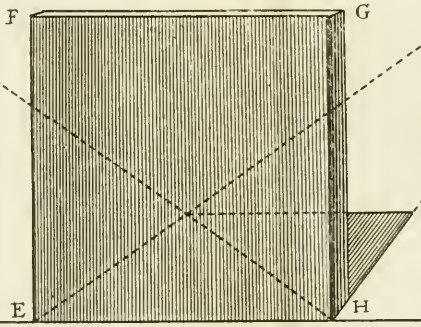
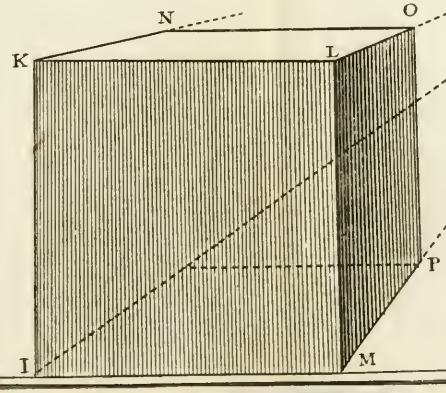


Fig. 3.



Thus much being ſuppoſed; if there be a number of columns or pilaſters to be ranged in Perſpective on each ſide of a hall or church, they muſt of neceſſity be all made under the ſame angle, and all tend towards one common point in the horizon O, fig. 3; as, for inſtance, the eye being placed in A, viewing the firſt object D E; if, from the points D E, you draw the viſual rays D O, E O, they will make the triangle D O E, which will include the columns D E, F G, H I, K L, M N, ſo as they will all appear equal.

What has been ſaid of the ſides, is likewiſe to be underſtood of the cielings and pavements; the diminutions of the angles of remote objects, placed either above or below, following the ſame rule as thoſe placed laterally.

There is therefore no need of adding any thing farther, unleſs this, that you take care that there be as many ſquares or diviſions between the remoteſt objects, as between the neareſt; for, in that caſe, though diſtant objects be the cloſer, as they are farther from us, they will appear in ſome meaſure to preſerve their diſtance. Thus, in B C D E, fig. 4, the interval between the four neareſt columns, there are ſixteen ſquares, and no fewer than ſixteen between the four remoteſt K L, M N.

It follows from what has been ſaid, that if you join two triangles as in the laſt figure but one for the ſides, and two others of the laſt for the tops and bottoms of an object, all four will terminate in one ſingle point A, which is the point of ſight wherein all the viſual rays meet.

And this will give a proof of what we have advanced, viz. that objects diminiſh as they remove, the lower riſing, the upper falling, and the lateral cloſing or approaching: An example of all which is given in plate XIII. fig. 1, which exhibits, as it were, depths and diſtances, falling back and receding from us, though all equally near the eye.

The trees, being ranged by the ſame law, have the ſame effect as the columns, &c. for being all comprehended in the ſame angle, and the two rows having each its own angle, and the angles all meeting in a point A, fig. 2, they form a third, which is the earth; and a fourth, which if you pleaſe, is the air; and thus afford an elegant proſpect.

1. *Of the meaſures upon the baſe in* PERSPECTIVE. By the baſe line alone, any depth may be given, and in any place at pleaſure, without the uſe of ſquares; which is a very expeditious way, though ſomewhat difficult to learn.

I ſhall however endeavour to make it underſtood, by reaſon that I ſhall frequently make uſe of it.

As, for example, ſuppoſe the baſe line B S, the point of view A, and the points of diſtance D E, plate XIV, fig. 1; if now you

you would make a plan of a cube B C, draw two occult or dotted lines from the extremes B C to the point of ſight; then, to give the breadth, take the ſame meaſure B C, and ſet it off on the terreſtrial line C F; and from F draw a line to the point of diſtance D, and where this line interſects the firſt ray C, in the point G, will be the diminution of the plan of the cube B H G C.

If you would have an object farther towards the middle, take the breadth and the diſtance of the baſe line, as I K; and, to have the depth, ſet it as you would have it on the ſame baſe as L M, and its width both on L M: Then, from L and M, draw occult lines to the point of diſtance D; and, from the points N O, where thoſe lines interſect the ray K, draw parallels to the terreſtrial line, and you will have the ſquare Q P O N.

After the ſame manner you may ſet off the other ſide of the ſquare which ſhould be on the baſe, as B H G C is here tranſferred to V. The points M and T, which are only two feet from the point S, afford a very narrow figure in X, as being very near.

2. *Of the baſe line and a ſingle point of diſtance.* Since the depths and widths may be had by the means of this baſe line, there is no need of any further trouble in making of ſquares, as ſhall be ſhewn in this example:

Suppoſe a row of trees or columns is to be made on each ſide; on the baſe line lay down the place and the diſtance between them, with their breadth or diameters, as A B C D E F G, fig. 2; then, laying a ruler from the point of diſtance O, to each of the points A B C D E F G, the interſections it makes on the viſual ray A H will be the bounds of the objects deſired.

To ſet them off on the other ſide, upon the ray G H, ſet one foot of the compaſſes upon the point of the eye H, and with the other ſtrike an arch; the point wherein this cuts the ray G H, will be the correſponding bound.

Thus M will be the ſame with N, and ſo of the reſt; through which drawing parallels, you will have the breadths.

And, as for the length, you may make it at pleaſure, ſetting it off from A, as for inſtance, to P, and then from P, drawing a line to H; and, where this cuts the other parallels, will be formed the plan required, which you may make either round or ſquare.

3. *Not to deceive one's ſelf in the meaſures.* Never put any objects that are intended to be within the plan on the ſide of the point of diſtance, where you are to draw lines for the management of the depth.

Thus, ſuppoſe A B, fig. 3, the viſual ray, whereon the meaſures are to be marked; if you would produce the points C and D through the ſame, do not draw the lines from the point of diſtance E, but from that oppoſite thereto, F; or, if C and D were on

Fig. 1

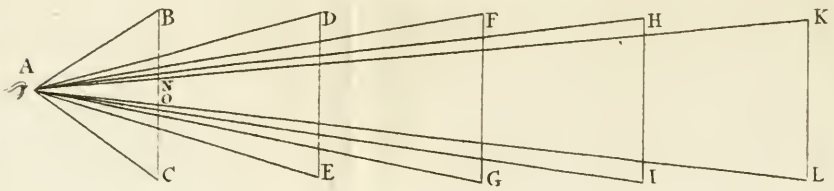


Fig. 2.

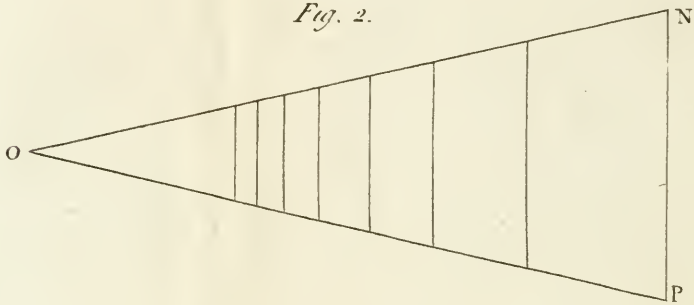


Fig. 3.

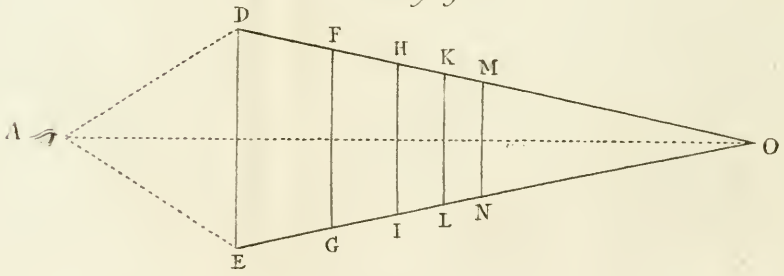
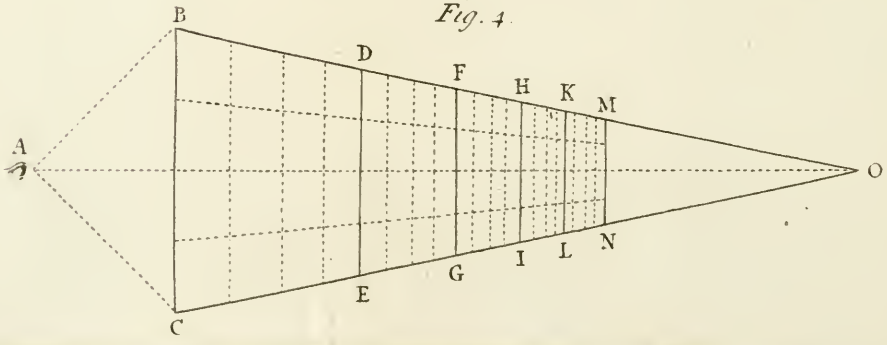
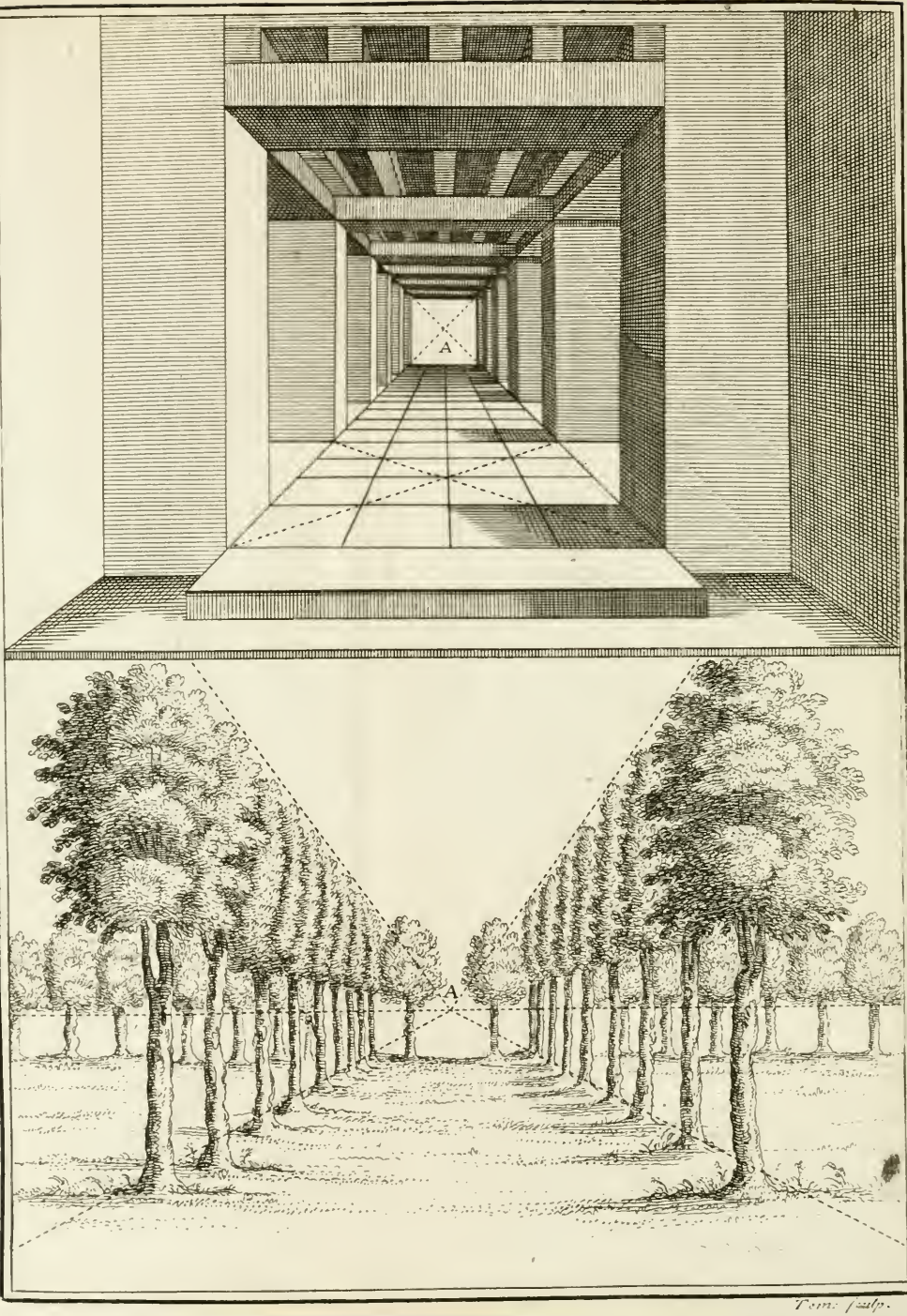


Fig. 4





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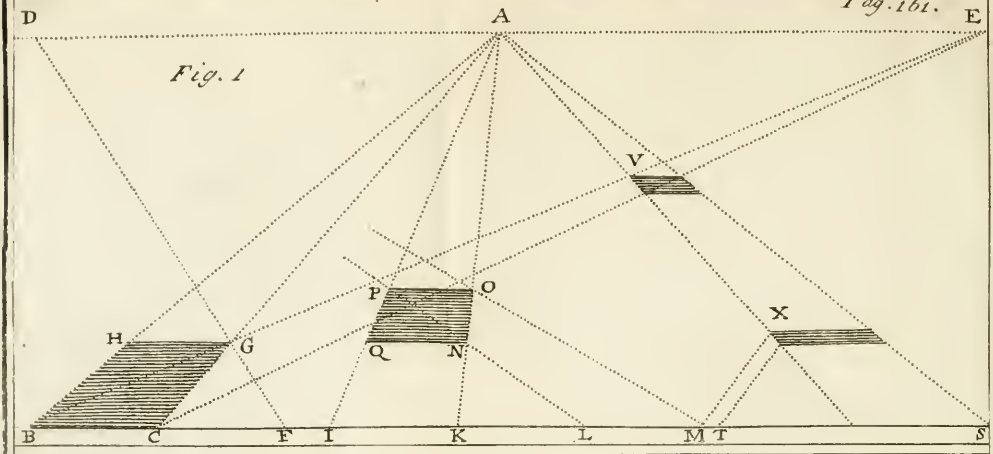

Fig. 1

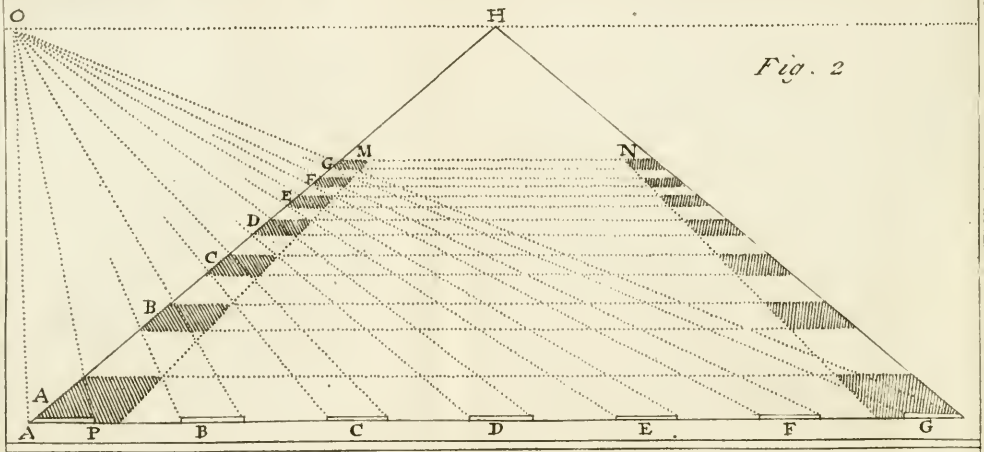

Fig. 2

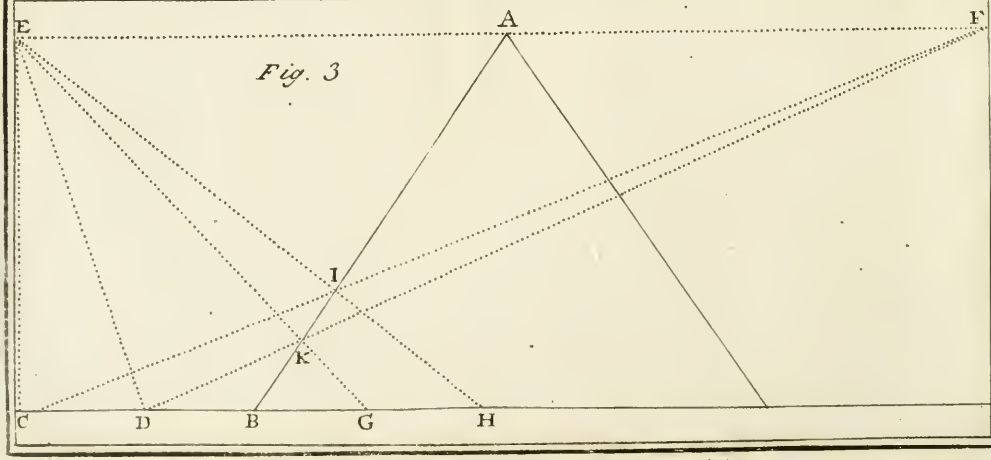

Fig. 3

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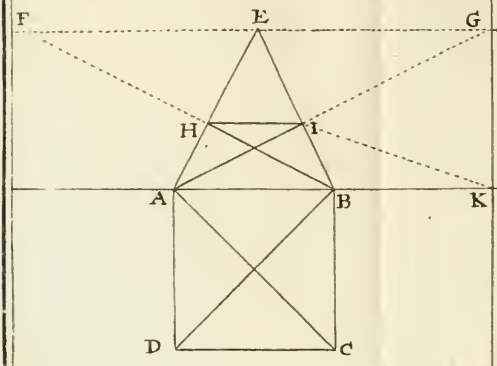
1



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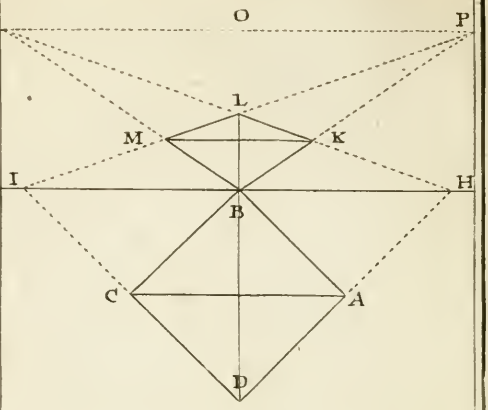

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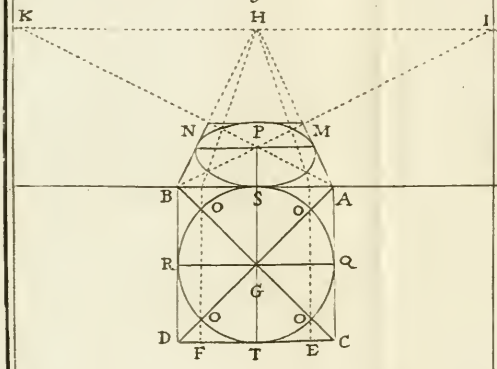

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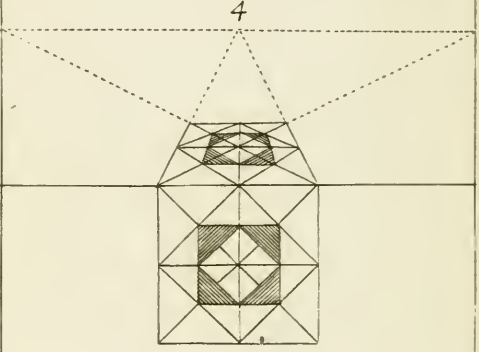

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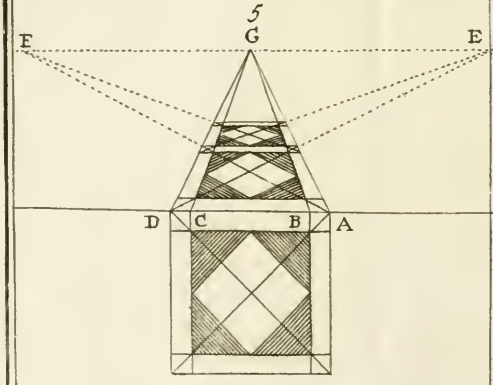

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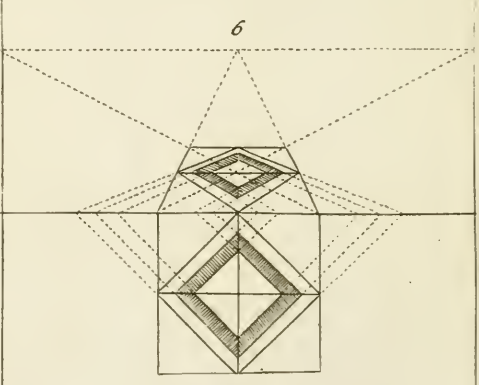

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on the inſide, as G and H are, you ſhould not draw from the point F, but from E; by reaſon that the line of interſection is found between the two; conſequently the two will cut each other in the ſame points I K. See fig. 3.

Of planes viewed directly, or in front. From the third and fourth articles preceding, and the elevations that follow, it will appear that my intention is not to uſe geometrical plans, in order to the drawing of Perſpectives; that being a double labour, and there being very few painters who would give themſelves the trouble, ſince I teach them to do the ſame thing by the uſe of the terreſtrial line.

But, as there is no rule ſo general but has its exceptions, ſo there are certain figures that cannot be put in Perſpective without the uſe of ſuch plans; beſides the confuſion a man would be under, ſhould a plane be given him to put in Perſpective, if he had not been inſtructed how to proceed.

On theſe conſiderations I have been induced to give the following rules, which may ſuffice to ſhew how any plane that can be required, or even imagined, may be put in Perſpective.

1. *To ſhorten or diminiſh a ſquare, as* A B C D, *plate* XV, *fig.* 1. From A and B, to the point of ſight E, draw the lines, A E, B E; and from the ſame angles, A and B, draw two diagonals, F B, A G; and the points H and I, where they interſect the rays A E and B E, will give the ſquare A B C D, diminiſhed in A H I B.

To do it without the geometrical plan, draw a line from B to F, or from A to G; or ſet off the line A B on the terreſtrial line, as in B K; and from K draw another line to F, which will give the interſection I, on the ray B E.

2. *To diminiſh a ſquare viewed by the angle* D. Having deſcribed the plane A B C D, fig. 2, draw a line to touch or raſe the angle B, and falling perpendicularly on B D.

This being continued as a baſe line, lay your ruler on the ſide of the ſquare A D and D C, and, where the ruler cuts the terreſtrial line, make the points H, I.

Then, from H and B, draw lines to the point of diſtance P; and from I draw a line to the other point of diſtance G; and, in the interſection of thoſe lines, make points, which will give you the ſquare K L M B.

To do without the plan; ſet off the diameter each way from the middle point B, as to H and I. But in either caſe no line is to be drawn to the point of ſight O.

3. *To diminiſh a circle.* Draw a ſquare, A B C D, fig. 3, about it, and, from the angles A D and C B, draw diagonals, dividing the circle into eight parts; and, through the points where they cut it, O O, draw lines from the baſe line perpendicular to D E F.

Then draw two diagonals, Q R, S P, interfecting each other at right angles in the center G.

Having thus difpofed the plan, draw lines from all the perpendiculars to the point of fight H; and, where they are interfected by the diagonals A K and B I, make points; the two laft of which M, N, give the fquare, which is to be divided into four by diagonals, interfecting each other in the point P.

In the laft place, from the extremes of this crofs, draw curve lines through the faid points, which will give the form of the circle in Perfpective.

This method may ferve for fmall circles; but for large ones there is another method more exact.

4. Figure the fourth is compounded of the two firft, which is all that needs to be faid about it.

5. This fifth figure alfo depends on the two firft, only here is a lift or border going round, which the others have not.

To put the lift in Perfpective; from the four rays A B C D, fig. 5, draw lines from the point of fight G; and, where the inner rays B C interfect the diagonals D F and D E, draw parallels to the bafe line; and you will have your defire.

6. The fixth figure is the fame as the fecond, except that it is furrounded with two borders.

Reduction of PERSPECTIVE *draughts out of fmall into great, and out of great into fmall.* As defigns are made with more eafe in little than in great, it is but reafonable that they fhould be fo made. This has put me upon giving a method of inlarging fmall defigns on the canvas.

The method commonly ufed by painters, is to divide their little defigns, and the canvas they intend the large ones to be on, into an equal number of little fquares, and to transfer what is in the fquares of the defign into the correfpondent fquares of the canvas.

But that which follows is approved by fome as eafier and furer.

Provide a fcale proportionate to the little defign, and another proportionate to the canvas.

To make a defign, the firft thing to be determined is the fcale, which is to fix the meafures of all the parts of the work.

Thus, in the little defign A, plate XXIV, the fcale B C of five parts, which may be called feet, is the firft thing to be made. From this fcale are taken the horizon, the height and diftance of the trees, the breadth of the walks, &c.

To inlarge this defign. The method is this; conlider whether or no the draught is to have its natural horizon, i. e. whether, when the bottom of the painting is on the ground, the horizontal line be the height of the eye, which is about five feet.

Then, of the five divifions between B and C, make a fcale of

five feet F G; and thus, having taken all the measures and proportions in the small one, you may transfer them to the great one, after the following manner:

The two scales being thus fixed, the first thing to be done is to take into your compasses the distance between the base line D, and the horizon E, and to apply the compasses thus opened to the little scale B C, noting what number of parts it includes, as here it does five.

Therefore take five divisions on the large scale F G in your compasses, and set them on each side the painting, or large design, beginning at the bottom of the cloth H H, and ending in I I.

From the point I I, strike or score a line with a chalked or blackened packthread.

This line I I will mark the horizon in the large draught.

Then take the distance or depth K L of the little design, which gives the foot of the house, and set it on the little scale; note how many divisions it includes, and take the same number from the large scale, and set them on the edges of the canvas H M, H M, which you must strike with a packthread for the depth of the second tree.

Proceed to take in the little design the depth N O, and set it on the little scale; then take as many in the large one.

Again, N O includes two parts of the little scale; accordingly two parts are to be taken on the great one, and set off from H to P, which must be struck as before.

Do the same for all the parallels to the base line, as the other trees, windows, roofs, &c.

As to the perpendicular to the base line, the method is the same as for parallels, only they are to be struck or scored, not from the side, but from top to bottom.

Thus for the two corners of the house, the interval between them, being taken in the compasses, must be set on the little scale, and, being there found equivalent to seven divisions and an half, as many divisions must be taken from the great scale, by which you will have H S T S to be struck as before.

And the like must be repeated for all the other perpendiculars, as buildings, trees, palisadoes, &c.

To find the visual rays, which are the lines proceeding to the point of sight V, fasten a packthread to this point V of the length of the painting, and with this strike or score all the rays very exactly.

Thus, for the two rays D X, which give the breadth of the trees in the little design, take the distance D X; set it on the little scale B C, and take an equal number of divisions from off the great scale; this will give you H Y: To which points, H and Y, lines are to be struck with the packthread from the point V.

For the ray of the paliſadoes, take the diſtance D Z, and ſet it on the little ſcale; and take as many diviſions from the large ſcale: By this means you will have H +, which are to be ſtruck from the point V as before.

Every thing in a Perſpective ordinarily comes under one or other of theſe three ſorts of lines, viz. parallels, perpendiculars, and viſual rays; and, having ſhewn how to deſcribe theſe with a good deal of eaſe on the canvas, there remains nothing difficult in the reducing ſmall deſigns into great.

As to the reducing great into little, you have only to invert the proceſs; that is, take meaſures firſt on the large ſcale, and diminiſh them proportionably on the ſmall one.

Thus, if the horizon of the large deſign were five diviſions of the large ſcale, five diviſions of the ſmall were to be taken for the height of the horizon of the ſmall deſign, and ſo of the reſt.

PERSPECTIVE, in painting, is uſed for a kind of picture, or painting, frequently ſeen in gardens, and at the ends of galleries; deſigned expreſsly to deceive the ſight, by repreſenting the continuation of an alley, a building, a landſcape, or the like.

Of gardens in Perſpective, ſee GARDEN.

Of rows of trees in Perſpective, ſee ROWS.

Shadows in Perſpective, ſee SHADOW.

Streets in Perſpective, ſee STREET.

Walks in Perſpective, ſee WALK.

PERSUASION, is repreſented, in painting, &c. by a fantaſtical woman; a tongue faſtened to her head attire, with an eye over it; ſhe ſeems whimſical, and is tied round with cords; with an animal with three heads.—The tongue denotes its being the inſtrument of Perſuaſion; the eye, exerciſe and art, contributing to Perſuaſion; the cords force of eloquence, binding up the will; the animals ſignify three things; by the fawning dog, docility; by the ape, attention; and, by the cat, diligence.

PETUNTSE, or, as it is uſually called, Petunſe, one of the two earths, or foſſil ſubſtances, of which the porcelain ware, or China, is made: The other is named kaolin. The Petuntſe is ſprinkled all over with bright glittering particles; it is beaten to powder, and afterwards made up into a ſort of bricks, and in that form it is ſent to the place where it is to be wrought. It is of a hard texture, and of a ſomewhat greeniſh colour. Mr. Reaumur, of the Academy of Sciences at Paris, who was extremely induſtrious in ſearching into the nature of porcelain, obtained ſome ſpecimens of the Petuntſe, both in its native ſtate, and in the form of a brick, which form is given it after it is powdered and reduced to a paſte.

Mr. Reaumur found, that the Petuntſe was ſo far from being an earth, as is uſually ſuppoſed, that it was truly of the nature

of the European flint or pebble, as he eſtabliſhes the character of that body; but, to underſtand this rightly, it is to be obſerved, that this author makes the flints and pebbles a very large claſs of bodies, ſome of which are more, and ſome leſs tranſparent; and that this Petuntſe is of the coarſer, or leſs tranſparent kind, and the ſurface of which, when broken, is not ſo ſmooth and poliſhed as that of the ordinary flint: The great character of theſe ſtones for the porcelain manufacture is, however, that they are very eaſily vitrified, without the aſſiſtance of any ſalt, and without the immediate contact of the fire, the operation ſucceeding in a crucible; which is not at all the caſe in regard to the European flints, they very differently melting alone in a crucible, and then only into a whitiſh opaque glaſs.

It being certain from hence, that one of the two ingredients of the China ware is eaſily vitrifiable, it follows, from the experiment of the whole mixture, or China ware not being reducible into glaſs in a large fire, that it is a compoſition of a vitrifiable and a not vitrifiable, or, at leaſt, not eaſily vitrifiable ſubſtance; and, conſequently, that the kaolin is a ſcarce vitrifiable body, and that the reſult of the action of fire, on a mixture of theſe two, is a ſemivitrification, which is what we call the China ware.

If we therefore could in Europe provide the materials of China, or ſuch as were like them, we might reaſonably hope to ſucceed; and this appears far from improbable: The Petuntſe is eaſily ſupplied by many of our own earths, ſtones, and ſands, as nothing is required in it more than a property of running eaſily into a white glaſs.

Pietro PERUGINO, born in the year 1496, ſcholar of Andrea Verocchio; he lived at Florence and Siena, excelled in hiſtory-painting; died in 1574, aged 78 years.

Baldaſſar PERUZZI *da Siena*, born in the year 1500; he lived at Rome, excelled in hiſtory and architecture; died in 1530, aged 36 years.

Hiſbel PEUN, an engraver of Nuremberg, called *Hiſbin*; he uſed this mark from the year 1513 to 1549. Hans, or John, Sebald Beham alſo uſed this mark.

PEWTER, is a mixture of lead and tin, and has ſometimes in it, for the better hardening of it and keeping of it together, a ſmall quantity of braſs or copper.

P. F. ſtands for Paul Farinati, of Verona, painter and inventor.

P. H. ſignifies Peter Hys, in certain pieces of devotion.

Phil. Th. 1589, ſtands for Philip Thommaſini.

P. John Sebald Beham, ſee letter B, and the letters V. P.

Pi. Ss. Bart. ſtands for Peter Santi Bartoli, engraver of Perugini in Rome.

PHILOSOPHY, is repreſented, in painting, &c. by a wo-

man; her eyes ſparkling and vivid; roſy cheeks; a vigorous conſtitution, though pretty old; and in a grave habit.—Her venerable aſpect denotes reſpect, due to her as the mother of liberal arts; her books and ſcepter, that perſons of quality ought not to deſpiſe this queen; the ⊙ upon her breaſt ſignifies theory, and the letter Π, on the bottom of her garment, practice.

PHLEGM is repreſented by a groſs man, ſitting in a fur gown, clapping both hands into his boſom; his head, one ſide bound up with a black cloth, almoſt covering his eyes; a tortoiſe by him.—His groſſneſs proceeds from coldneſs and moiſture; the fur of the otter, it being a phlegmatic animal; his head inclined, his dulneſs, like the tortoiſe by his ſide, becauſe it is a ſlow creature.

PHŒBUS, or SOL, i. e. the ſun, was repreſented by the ſtatue of a man, with his head half ſhaven.

By the head half ſhaven is intimated, that, though his beauty or ſhining may be clouded for a time, yet that he will return, and beautify the ſame with his priſtine brightneſs, as the growing of the hairs, which ſignify his beams, to their full extent and perfection again, may denote.

Lactantius relates, that Phœbus, or Apollo, was the chiefeſt god of the Perſians, who deſcribed him as follows: In the ſhape of a man, dreſſed in the Perſian habit, and with the head of a lion, wearing on it ſuch ornaments as the Perſian women uſed, holding by force a white cow by the horns.

By the head of the lion was ſignified the dominion of the ſun in the ſign Leo; the cow repreſents the moon, whoſe exaltation is in Taurus; and his forcibly holding her by the horns, the eclipſe of the moon, which ſhe cannot avoid.

Macrobius ſays, that there was found in Aſſyria the ſtatue of Phœbus, Apollo, &c. the father of Æſculapius, of poliſhed gold, in the form of a young man, and beardleſs, who, ſtretching out his arms, held in his right hand a coachman's whip, and in his left a thunderbolt, with ſome ears of corn.

Martianus deſcribes the image of the ſun in the form of a man, wearing on his head a royal and gorgeous crown, inchaſed with many precious gems, three of which adorn his forehead, ſix his temples, and three other the hindermoſt part of the crown; his hair hanging down in treſſes, appearing like refined gold; and his countenance wholly like a flame; his garment thin, and wrought with fine purple and gold; holding in his right hand a ſhield, and in his left hand a flaming firebrand; and two wings on his feet, beſet with fiery carbuncles.

Apollo is alſo drawn as a young man crowned with laurel, having long curled golden hair, clad in a purple robe, holding a ſilver bow in his hand, and ſitting on a throne of emeralds; and at

at other times ſtanding on the ſerpent Python, with this motto, Opifer per orbem dicor.

PHYSIC, is repreſented, in painting, &c. by a woman of full age, with a garland of laurel; a cock in one hand, and a knotty ſtaff, round which a ſerpent is twiſted.—Her age ſhews that then a man is either a fool or a phyſician; the laurel denotes its great uſe in Phyſic; the cock, vigilance, for a phyſician that adminiſters ought to be up at all hours; the ſerpent, becauſe, by caſting her ſkin ſhe is renewed; ſo do men, being cured, renew their ſtrength.

PHYSIOGNOMY [*Φυσιογνωμία* of *φύσις* nature, and *γνώμη* opinion] is a Greek word, ſignifying the rule or law of nature, by which the affections of the ſoul have relation to the form of the body; ſo that there are fixed and permanent ſigns which diſcover the paſſions of the ſoul.

PICTURE: There are always four principal things to be conſidered in every Picture, viz. 1. the invention; 2. the proportion; 3. the colour; and 4. the life.

1. Invention; this ought to be free, and flow from a general knowledge of antiquity, hiſtory, poetical fictions, geometrical concluſions, and optical conſiderations, according to its ſituation or aſpect, either near or far off.

2. And this invention muſt expreſs proper and fit things, agreeing with the circumſtances of place, time, matter, and perſon; and alſo having reſpect to the modes of habits peculiar to the country or people, whether ancient or modern.

3. As to proportion, analogy, or ſymmetry, that is what limits each part to its proper ſize in reſpect to the whole.

Whatſoever is different from this, is defective as to beauty, and may not improperly be called deformity.

4. Proportion is called by artiſts the deſigning lines, which are firſt drawn, before the whole is painted.

5. Theſe proportions, or lineal deſigns, draughts, and ſketches may be called Picture; which, being well done, ſhew not only the ſhape, but alſo the intent.

6. The proportion of a blackmoor may be drawn in lines only, and ſuch as ſhall be like him; now this ſkill proceeds from the very higheſt principles of art.

7. Colour is that which makes the Picture reſemble what we deſign to imitate, by mixing of various colours together.

The diſpoſition of PICTURES. 1. Antique works, as groteſque, may become a wall, the borders and friezes of other works; but, if there be any draughts in figures to the life upon the wall, they will be beſt of black and white, or of one colour heightened; if they be naked, let them be as large as the place will allow;

if of columns, aqueducts, arches, ruins, or cataracts, let them be bold, high, and large of proportion.

2. Let the beſt pieces be placed to be ſeen with ſingle lights, for ſo the ſhadows fall naturally, being always fitted to anſwer one light; and the more under or below the light, the better, eſpecially in mens faces and larger pieces.

3. Let the porch, or entrance into the houſe, be ſet out with ruſtic figures and rural objects.

4. Let the hall be adorned with ſhepherds, peaſants, milkmaids, neat-herds, flocks of ſheep, and the like, in their reſpective places, and proper attendants; as alſo fowls, fiſh, and the like.

5. Let the ſtair-caſe be ſet off with ſome admirable monument or building, either new or ruinous, to be ſeen and obſerved in paſſing up; as let the cieling over the ſtair-caſe be painted with figures foreſhortened, looking downwards out of clouds, with garlands and cornucopia's.

6. Let landſcapes, hunting, fiſhing, and fowling pieces, hiſtories, and antiquities be placed in the great chamber.

7. Place the pictures of the king and queen, or their coats of arms, in the dining-room, forbearing to place there any other pictures of the life as not worthy to be their companions, unleſs at the lower end two or three of the chief nobility, as attendants on their royal perſons; for want of which you may put in their places ſome of the neareſt blood.

8. In the inward, or withdrawing chambers, place the draughts of the life of perſons of honour, intimates, or ſpecial friends and acquaintance, or of artiſts only.

9. In banqueting rooms place chearful and merry paintings, as of Bacchus, centaurs, ſatyrs, ſyrens, and the like; but not any obſcence pictures.

10. Hiſtories, and the beſt works, become galleries, where every one may walk, and exerciſe their ſenſes, in viewing, examining, delighting, judging, and cenſuring.

11. In ſummer-houſes and ſtone walks, place caſtles, churches, or ſome fair buildings.

12. In terraces place boſcage and wild works.

13. Over chimney-pieces place only landſcapes, for they chiefly adorn.

14. And in the bed-chamber place your own, your wife's, and the pictures of your family.

If your pictures hang high, let them incline a little forward at the top, becauſe otherwiſe the viſual beams of the eye, extending to the top of the picture, appear farther off than thoſe at the foot.

Knowledge

Knowledge of PICTURES. There are three different ſpecies of knowledge relative to Pictures.

The firſt conſiſts in diſcovering what is good and what is bad in the ſame Picture.

The ſecond has reſpect to the name of the author.

The third, to know whether it be an original or a copy.

The firſt of theſe is certainly the moſt difficult to be acquired; it ſuppoſing a penetration and fineneſs of wit, with a good acquaintance with the principles of painting; and on the meaſure of theſe things the knowledge of the art depends.

Penetration and fineneſs of wit are neceſſary in making a judgment of the invention, of the expreſſion of the ſubject in general, of the paſſions of the ſoul in particular, of allegories, and what depends on the cuſtom or manners, and poeſy.

The knowledge of principles aſſiſts a perſon in finding out times and places, the cauſes of the effects which we admire; whether they proceed from the correctneſs or elegance of the deſign, or whether the objects appear advantageouſly diſpoſed, or the colouring, lights, and ſhadows be happily managed.

Thoſe whoſe minds have not been cultivated by the knowledge of principles, or, at leaſt, have ſome ſpeculation of them, may indeed be ſenſible of the effects of a fine Picture, but can never be able to give a reaſon for the judgment they make.

To know the author of a PICTURE. The knowledge of the names of authors muſt be acquired by long practice and the ſight of a great many Pictures of all the ſchools, and of the principal maſters that compoſe them.

Of theſe ſchools there may be reckoned ſix, viz. the Grecian, the Roman, the Venetian, the Lombard, the German, and the French.

After a perſon has, by much application, acquired a diſtinct idea of each of theſe ſchools, if he would diſcover to which of them a Picture belongs, he muſt compare it with that to which he thinks it bears the neareſt affinity; and, having found out the ſchool, he muſt apply the Picture to that painter whoſe manner agrees moſt with that work; but perhaps it is the greateſt part of the difficulty to attain a knowledge of this particular manner.

There are ſome curious perſons who form an idea of a maſter by a ſight of three or four of his Pictures, and who, after this, think they have ſufficient authority to determine as to his manner, without conſidering what care the painter took about them, and what age he was of when he drew them.

We are not to judge of the merit of a painter from ſome particular Pictures of his, but from his works in general; for there is no painter but what has made ſome bad, as well as ſome good, according to his care, or the motion of his genius.

Nor

Nor is there any painter who has not had three manners, viz. his beginning, his progreſs, and his end.

The firſt he took from his maſter; the ſecond he formed by his goût, in which are to be found his capacity and genius; and the third commonly degenerates into what is called manner; for a painter who has a long time ſtudied after nature, is willing, without any more trouble, to make uſe only of the experience he has acquired.

When a curious perſon has well conſidered the different Pictures of a maſter, and has formed a perfect idea of his ſtile, he may then make a judgment who is the maſter of a Picture, without incurring the cenſure of raſhneſs; though a critic who has a talent, and has ſtudied and practiſed the art, may ſometimes be deceived in the name of an author, yet he will, at leaſt, never be deceived in the juſtneſs and ſolidity of his ſentiments.

There are Pictures which have been made by ſcholars, who have copied their maſters very exactly in their judgment and their manner.

Some painters have followed the goût of another country, and not their own; and ſome again have left one manner for another, and have by this means made ſome Pictures, which will puzzle the beſt judges to gueſs the name of their author.

But, nevertheleſs, this inconvenience is not left without a remedy; for ſuch as do not ſatisfy themſelves in knowing a maſter's hand, have penetration enough to diſcover the character of his mind.

A ſkilful man may eaſily communicate the manner in which he executes his deſign, but not the delicacy of his thoughts.

It is not ſufficient to know the motion of a pencil of a Picture, in order to find out the author, if he cannot penetrate into that of his mind too; and, though it is a very great attainment to have a juſt idea of a painter's goût in his deſign, yet it is neceſſary alſo to enter into the character of his genius too, and the turn which he is capable of giving his conceptions.

To know whether a PICTURE *be an original or a copy.* It is here ſuppoſed that a copy is made by a good maſter, which deſerves a ſerious reflection, and will make a perſon doubt, at leaſt for ſome time, whether it is an original or a copy.

There are of ſuch copies three ſorts.

The firſt done faithfully, but ſervilely.

The ſecond done lightly and eaſily, but not faithfully.

The third is done both faithfully and eaſily.

The firſt, which is faithfully but ſervilely done, includes the deſign, the colouring, and the touches of the original; but the fear of paſſing beyond the bounds of this exactneſs, and of erring againſt faithfulneſs, has rendered the hand of the copier ſtiff, and,

and, if it be never ſo little examined, ſhews it to be what it is.

The ſecond, which is done lightly and eaſily, but not faithfully, is more likely to impoſe upon the ſpectator, becauſe of the lightneſs and eaſineſs of the pencil; but the unfaithfulneſs of the contours, or outlines, will undeceive good judges.

As to the third, which are both faithful and eaſily performed by an artful and light hand, and, above all, in the time of the original, they will puzzle the greateſt critics, and often hazard their pronouncing againſt truth, though it may be agreeable to veriſimility.

As there are ſome things that favour the opinion of the piece's being an original, ſo again there are others that ſeem to deſtroy it; as, firſt, the repetition of the ſame Picture; ſecondly, its having been forgotten a long time; thirdly, the cheapneſs of it.

But, though theſe conſiderations may have weight, yet they are ſometimes very trivial, for want of a thorough examination.

That a Picture is forgot, proceeds often from the hands into which it falls, the place where it is put, the perſons which ſee it, or the little value that the owner has for painting.

The cheapneſs of it often proceeds from the neceſſity or ignorance of the ſeller.

The repetition of a Picture, which is a more ſpecious cauſe, is not always a ſubſtantial reaſon.

There is ſcarce a painter but has repeated ſome one of his works, either becauſe he was pleaſed with it, or becauſe he was deſired to draw another like it; and ſometimes the greateſt artiſts have been deceived.

There are, beſides, a ſort of Pictures which are neither originals nor copies, which the Italians call paſtici, from paſte; becauſe, as the ſeveral things that ſeaſon a paſty are reduced to one taſte, ſo counterfeits that compoſe a paſtici tend only to effect one truth.

A painter that would deceive in this way, ought to have in his mind the manner and principles of the maſter, of whom he would give an idea, whether he takes any part of a Picture which that maſter has made, and puts it in his own work; or whether the invention is his own, and he imitates lightly, not only his touches, but even his goût of deſign and colouring.

It often happens that theſe painters, who intend to counterfeit the manner of another, aiming to imitate ſuch as are more ſkilful than themſelves, make better Pictures of this kind than if they were to do ſomething of their own.

Among thoſe who took delight in counterfeiting the manner of other painters, we may mention one David Teniers, who has deceived, and ever will deceive the curious, who are not before acquainted with his dexterity in counterfeiting Baſſano and Paolo Veroneſe. There are ſome of his paſtici performed with ſo much cunning,

cunning, that they have ſurpriſed the eyes of the moſt judicious; but, after they have examined them the nearer, they have ſoon diſtinguiſhed the one's colouring and the other's pencil.

Teniers had a particular talent in imitating Baſſano; but the light and eaſy pencil which he uſed in this artifice, is the very proof of his deceit: For his pencil, though eaſy and light, is not ſo lively nor ſo proper to characteriſe objects, as that of Baſſano, eſpecially as to animals.

Teniers indeed underſtood the union of colours, but there was a certain grey predominant in his, and his colouring had not the vigour and ſweetneſs of Giacomo Baſſano. It is the ſame with all paſtici; and, if we would not be deceived by them, we muſt examine their goût of deſign, their colouring, and the character of their pencils, with the originals from whence they were taken.

Edward PIERCE, was a good hiſtory and landſcape painter in the reigns of king Charles I. and II. He alſo drew architecture, perſpective, &c. and was much eſteemed in his time; little of his work now remains, the far greater part having been deſtroyed by the dreadful fire in 1666, it chiefly conſiſting in altar-pieces, cielings of churches and the like; of which laſt ſort there is one yet remaining, done by him in Covent-garden church; in which are to be found many admirable parts of a good pencil. He worked ſome time for Van Dyke, and ſeveral pieces of his performance are to be ſeen at Belvoir caſtle in Leiceſterſhire, the noble ſeat of the duke of Rutland. He died in London about ſixty years ago, leaving behind two ſons, who both became famous in their different ways; one was a moſt excellent carver in ſtone, as appears by a noble marble vaſe of his doing at Hampton-court.

PIETY, is repreſented, in painting, &c. by a woman of a very pale complexion, a Roman noſe, flame inſtead of locks; ſhe is winged, with her left hand towards her heart, in her right a cornucopia pouring out things neceſſary for life.

The wings declare her celerity; the flames the ſpirit inflamed with the love of God; the left hand that a pious man gives proofs of it without oſtentation; the horn of plenty, the undervaluing of worldly riches, and a liberal aſſiſtance to the poor.

PIETY, is alſo repreſented, in painting, in the form of a lady of a ſober countenance; holding in her right hand ſtretched out a ſword over an altar; and in her left hand a ſtork; and by her ſide an elephant and a child.

The ſtork is ſo called of στόργη, the reciprocal or mutual love of parents, of whom this bird was ever an emblem, for the love and care ſhe hath of her parents being old; the elephant is ſaid to worſhip towards the riſing ſun.

To make French PINK. This is uſually made with Spaniſh white and Avignon berries; but it is apt to change colour; ſo that it will be better to make it of white lead or ceruſs, ground very fine on a marble. When it is ground, take it up with a wooden ſpatula, and ſet it to dry in the ſhady part of a room; then bruiſe French berries in a marble mortar with a wooden peſtle, and boil them in a cloſe earthen pot, till the third part or more be evaporated.

Strain this decoction through a linen cloth, and put into it the quantity of two or three ſmall nuts of alum, to hinder it from changing colour; when it is diſſolved, dilute the white with this decoction, to the conſiſtence of a pretty thick pap, or rather paſte, which you are to work well between your hands, and make up into troches, and lay them to dry in an airy room: When they are dry, dilute them again two or three times with the ſame decoction, according as you would have your Pink bright or deep, and ſet it to dry each time.

The liquor or decoction muſt be warm, when the paſte is diluted with it, and you muſt make it a-freſh, when the firſt is tainted; taking care never to touch it with iron or ſteel, but always uſing a wooden ſpatula.

Sebaſtiano del PIOMBO, born in the year 1485, ſcholar of Gio Bellini, and ſtudied under Giorgione, lived at Venice and Rome, excelled in hiſtory and portraits; died in 1547, aged ſixty-two years.

PIONY, *in miniature, to paint.* Let the firſt lay be of Indian lake and white of a pretty good body; and then ſhade with a leſſer quantity of white, which however muſt be quite diſuſed in the deepeſt places. When this has been done, finiſh with ſtrokes of the ſame colour; charging it ſtrongly with gum in the darkeſt ſhade, and heightening the lights and the edges of the brighteſt leaves, with white and a little lake: You muſt alſo expreſs ſmall veins like the ſtrokes of hatching; but they muſt appear more.

The green of this flower muſt be of the ſea kind, and ſhaded with iris.

Francis Le PIPER, was the ſon of a Kentiſh gentleman, deſcended from a Walloon family; being of a gay and facetious humour, his manner was humorous or comical. He delighted in drawing ugly faces, and had a talent particular for it, that he would, by a tranſient view of any remarkable face of man or woman that he met in the ſtreet, retain the likeneſs ſo exact in his memory, that, when he expreſſed it in the draught, the ſpectator, who knew the original, would have thought the perſon had ſat ſeveral times for it.

It is ſaid of him he would ſteal a face; and a man that was

not

not handſome enough to deſire to ſee his picture, ſat in danger in his company.

The greateſt curioſities that he ſought after, were the works of the painters, which he examined every-where with pleaſure and judgment, and formed to himſelf a manner of deſign which no man in that kind ever excelled, and perhaps never equalled. Having a good eſtate of his own, and being generous, as moſt men of genius are, he would never take any thing for his work; he drew them commonly over a bottle, which he loved ſo well, that he ſpent great part of his hours of pleaſure in a tavern.

This was the occaſion ſome of his beſt pieces, eſpecially ſuch as are as large as the life, were in thoſe houſes. He ſeldom deſigned after the life, and neglected the part of colouring: But yet he ſometimes, though very rarely, coloured ſome of his pieces, and, as we are informed, was not very unſucceſsful in it.

He drew the pictures of ſeveral of his friends in black and white, and maintained a character of truth, which ſhewed that, if he had thought fit to beſtow ſo much time as was neceſſary to perfect himſelf in colouring, he would have rivalled the beſt of our portrait painters in their reputations.

He drew ſome deſigns for Iſaac Becket, who performed them in mezzotinto. Thoſe draughts were generally done at a tavern; and, whenever he pleaſed, he would draw enough in half an hour to furniſh Becket a whole week's work.

His invention was fruitful, and his drawing bold and true.

He underſtood landſcape painting, and performed in it to perfection. He was particularly a great maſter in perſpective; in deſigning of his landſcapes, he had a manner peculiar to himſelf: He always carried a long book about him like a muſic-book, which when he had a mind to draw, he opened, and, looking through it, made the lower corner of the middle of the book his point of ſight, by which, when he had formed his view, he directed his perſpective, and finiſhed his picture.

His hand was ready, his ſtrokes bold, and his etching ſhort.

He drew ſeveral of the grand ſigniors heads for Sir Paul Rycaut's hiſtory of the Turks, which were engraven by Mr. Elder.

In the latter part of his life, he applied himſelf to the ſtudy and practice of modelling in wax, in baſſo relievo, in which manner he did abundance of things with very good ſucceſs.

Being one time at a tavern, with Mr. Faithorn, Mr. Sturt, the engraver, and others, he ſketched a head with a coal, and gave it to Mr. Faithorn, who touched upon it: In the mean time Mr. Le Piper drew another upon another trencher, and exchanged with Mr. Faithorn for that which he had touched.

They did thus ten times, and between them wrought up the heads

heads to ſuch a height of force, that nothing could be better done of the kind.

Theſe trenchers are ſtill extant, but we could not hear in whoſe hands they are at preſent.

He died in Aldermanbury about ſixty years ago, with the character of an accompliſhed gentleman, and a great maſter in his art.

His corpſe was carried from Chriſt's-church hoſpital, to the church of St. Mary Magdalen Bermondſey in Southwark, where it was buried in a vault belonging to his family.

To make a PLANT *grow in two or three hours.* Take common mould, and moiſten with the water that ſoaks from an old dunghil; put this mixture into an earthen veſſel, and in it ſet ſeeds of lettice, purſlain, or parſley, previouſly ſoaked in water, that end of the ſeed upwards which ſprouts.

Set the veſſel in a gentle heat, and, when it begins to dry, moiſten it with the ſaid water of dung; thus you have a ſallad while ſupper is making ready.

PLEASURE, is repreſented, in painting, &c. by a youth crowned with a myrtle garland, half cloathed, winged, a harp in his hand, and buſkins on his legs.—The myrtle denotes the ſame being dedicated to Venus, wherewith Paris was crowned when he paſt judgment in favour of her; his wings, that nothing vaniſhes ſooner than Pleaſure; the harp the tickling of his ſenſes with muſic; his buſkins inconſtancy, and his undervaluing gold to ſatiate his appetite.

PLENTY, is repreſented, in painting, &c. by a beautiful lady crowned with a garland, in a green gown embroidered, with a cornucopia in her hand; ſhe is no leſs amiable for her beauty, than her contrary, Want, is deformed and odious.—The garland denotes chearfulneſs, and the mirth that does inſeparably accompany her; the cornucopia is an emblem of the affluence of all things neceſſary for human life.

PLUTO, is painted with long curled hair; clad in a robe of cloth of gold.

He is alſo by the ancients painted riding in a chariot, drawn by four furious black horſes, from whoſe fiery noſtrils proceeds thick and ill-ſavoured ſmoke.

Some repreſent him, with his head incircled with a garland of cypreſs leaves, others with thoſe of narciſſus.

The firſt ſhews ſadneſs and horror, and are uſed at burials, and about the dead: But the others are more grateful, and are uſed in memory of the untimely death of the youth Narciſſus, killed by a wild boar.

Cornelius POELENBURGH, born in the year 1590, ſcholar of Abraham Bloemart, and ſtudied at Rome and Florence; lived

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at Utrecht, and in England; excelled in naked boys, landſcapes, ruins, and ſmall figures; died in 1667, aged 77 years.

POETICAL *Fury*, is repreſented, in painting, &c. by a briſk young beau of a ruddy complexion, winged, crowned with laurel bound about with ivy, in a writing poſture, but turning his head back toward heaven.—The wings declare the quickneſs of his fancy, which ſoars aloft and carries an encomium with it, which ſtill remain freſh and green as the laurel and ivy intimate; looking upwards, the ideas of ſupernatural things, which he writes down.

POETRY, is repreſented, in painting, &c. by a lady in a ſky-coloured garment, with ſtars and wings on her head, a harp in her right hand, crowned with a laurel, and a ſwan at her feet.—The ſky colours ſignify that none can excel in this art, if he be not endowed with extraordinary talents from heaven; the harp, becauſe they uſed to make Poetry and muſic to be in a harmonious concert; the crown ſhews that the poet's deſign is to be renowned; the ſwan is the emblem of muſic; the ſtarry robe divinity, as having its original from heaven.

POLISHER, an inſtrument called alſo a burniſher, uſed for poliſhing and burniſhing gold, ſilver, and other metals, when gilt or ſilvered, and matters of other kinds proper to take poliſh.

Gilders uſe an iron Poliſher to prepare their metals before gilding, and the blood-ſtone to give them the bright poliſh after gilding.

The Poliſher uſed by the ſpur and bit makers, &c. is part iron, part ſteel, and part wood. This inſtrument conſiſts of an iron bar, with a wooden handle at one end, and a hook at the other, to faſten it to another piece of wood, held in the vice, while the workman is working.

In the middle of the bow within ſide, is what they properly call the Poliſher, which is a triangular piece of ſteel, with a tail, by which it is riveted to the bow.

A cutler's Poliſher, is a kind of wooden wheel or grinder, made of walnut-tree, about an inch in thickneſs, and of what diameter or largeneſs you pleaſe; this is turned by the great wheel; and it is with this they poliſh and ſmooth their works with emery and putty.

The Poliſhers uſed by ſpectacle-makers, are pieces of wood a foot long, ſeven or eight inches broad, and an inch and a half thick, covered with old caſtor hat, whereon they poliſh the ſhell and horn frames their ſpectacle glaſſes are to be ſet in.

POLISHING *looking-glaſſes*. After looking-glaſſes have been ground, they are to be poliſhed, they ſtill looking but ſomething like a ſlate. The poliſhing is performed in the following manner: The plate is laid down on a ſtone placed horizontally, and,

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in a bed of plaiſter of Paris calcined and pulveriſed very fine and ſifted; which, being made into a ſort of paſte by water, and plaiſtered up the edges of the plate, dries and hardens, and ſo keeps it immoveable; then the workman, fixing a ſtrong bow of yew, or ſome other tough wood, to a board fixed up to the cieling of the room, fixes alſo the other end into an hole made in a wooden parallelopepid of about four inches long, covered with a ſort of coarſe woollen cloth well drenched with tripoly, tempered with water; and works it with this block and bow all over, till the plate has got a perfect politure.

POLVERINE, and ROCHETTA, come from Syria; they are the aſhes of a certain herb which grows there in great plenty, called kali.

The difference between the Polverine and rochetta conſiſts only in the methods of preparation, they being both produced from the ſame plant: All aſhes which come from the Eaſt for making glaſs are called Polverine, becauſe the aſhes are truly pulveriſed or in powder: And, on the contrary, the other is called rochetta, becauſe brought in hard lumps like ſtone. The glaſs-men prefer the latter to the former, for thoſe lumps yield a whiter and ſharper ſalt than the powder.

To extract a very ſharp and poignant ſalt from rochetta, a great deal of care is neceſſary in its preparation: In the Levant, a lixivium of the aſhes is firſt made, with which the herbs they are to burn are ſprinkled; then they are dried and again ſprinkled with new ley; by this means the plant produces very ſharp aſhes, which congeal into lumps as hard as flints, by reaſon of the abundance of ſalt, wherewith the herb is impregnated by the lixiviums; and it is hence that there is more ſalt extracted out of the rochetta.

Polverine, on the contrary, has no ſuch preparation; the herbs are only burnt on iron hurdles or bars; afterwards, when cooled, they are gathered up, and laid by, whence they have leſs ſalt than the rochetta; but this ſalt has no leſs virtue or goodneſs. Theſe two matters are now no longer uſed in France; but they uſe them ſtill at Muran, where Venice glaſs is made.

To extract the ſalt of POLVERINE, *rochetta, and ſoda, for making glaſs.* Thoſe who make glaſs, muſt begin by providing good rochetta or ſoda, ſee SODA, to extract the alcali ſalt of it, which is the baſis or foundation of their work: The beſt, which contains moſt ſalt, may be tried by touching it with the tongue; but the ſureſt method is to eſſay them in a melting-pot.

To extract the ſalt of rochetta or ſoda, which is commonly in lumps, reduce it firſt into a fine powder; fill your copper with fair water, and make a fire with dry wood; when the water begins to boil, put in ten pounds of tartar, calcined to a white-

neſs, to every hundred pounds of ſoda; ſtir it with a long wooden ladle, and put in the rochetta or ſoda; continue the fire, ſtirring with the wooden ladle in the copper, till all the Polverine is incorporated with the water, and the ſalt extracted. The water being one third part boiled away, fill your coppers again with freſh water, and continue the boiling till half be conſumed, when the ley will be made.

Your ley thus being made, ſlacken your fire, and empty your ley into earthen pans very well glazed; let it ſtand ſo ſix days, that the aſhes may ſettle to the bottom, and the ley become clear; pour that ley into other earthen pots, leaving the aſhes behind, and let it ſtand two days longer, and the ley will become very limpid and clear, all the earthy fæces precipitating and ſettling at the bottom; continue this three times, and you will have a clear and limpid ley, which will yield a very fine and perfect ſalt.

Fill the copper with the refined and clarified leys in the pans; gently boil it to evaporate the water, till it begins to thicken and ſhoot its ſalt, which it commonly does in about twenty-four hours time, ſo that the ſalt begins to appear on the ſurface of the copper.

Let the fire be gentle and eaſy as ſoon as the ſalt begins to ſhoot, for fear the ſalt ſhould ſtick to the copper, which a great fire will cauſe it to do, and ſo burn it; which often happens to thoſe that do not take ſuch precaution.

This reaſon ought to oblige thoſe who work in this art to procure veſſels well lined with lead, ſuch as they uſe to boil alum in; beſides, theſe leys, being ſharp and corroding, deſtroy and conſume the braſs by degrees, or the moiſture cankers it, and ſo it ſpoils the colour and beauty of the ſalt.

The ſalt, being well drained, muſt be put into little wooden tubs or fats, the better to dry out all the moiſture, according to the ſeaſon wherein it was made; then beat it groſly, and put it into a furnace moderately heated, there gently to dry. It being thus, take it out of the furnace and pound it in a ſtone mortar, or grind it in a mill, and afterwards ſift it through a fine ſieve, the holes whereof are not bigger than grains of wheat: This ſalt, being thus prepared, ought to be kept in a dry and convenient place, where there is no duſt.

POMEGRANATE *bloſſom*; to colour this, lay on minium, vermilion, and carmine, and finiſh with carmine.

Let the green be verditer and maſticote, and ſhade with iris.

Giacomo PONTE *da Baſſano il Vecchio*, was ſcholar to his father Bonifacio, ſtudied Titian and Parmegiano; born in the year 1510, lived at Baſſano and Venice, excelled in hiſtory, animals, landſcapes, and portraits; died in 1592, aged 82 years.

PORCELAIN; the moſt juſt and regular idea we can form of the Porcelain, or China ware, is, that it is an half vitrified ſubſtance, or manufacture, in a middle ſtate between the common baked earthen ware of our vulgar manufactures and true glaſs; this is the eſſential and diſtinguiſhing character of Porcelain, and it is only by conſidering it in this light, that we are to hope to arrive at the perfect art of imitating it in Europe.

This attempt is to be made, on theſe principles, in two different manners: The one, by finding ſome appropriated matter, on which fire acts with more than ordinary ſtrength, in the time of its paſſing from the common baked ſtate of earthen ware into that of glaſs; the other is to compoſe a paſte of two ſubſtances reduced to powder, the one of which ſhall be of force to reſiſt a very violent fire, ſo as not to become vitrified in it; and the other a matter eaſily vitrifiable; in the firſt caſe the matter is to be taken out of the fire, at the time when it is imperfectly vitrified; and in the other the compound maſs is to remain in the furnace till the one ſubſtance, which is the more eaſily vitrifiable, is truly vitrified, and, being then taken out, the whole will be what Porcelain is, a ſubſtance in part vitrified, but not wholly ſo.

The firſt method is that by which the European Porcelain has generally been made, and, though that of St. Cloude and ſome other places has been very beautiful, yet it is always eaſy to diſtinguiſh even the fineſt of it from China ware, and the nature of the two ſubſtances appears evidently different; theſe, owing all their beauty to their near approach to vitrification, are made to endure a long and violent fire, and are taken from it at a time when a very little longer continuance would have made them perfect glaſs; on the contrary, the China ware being made of a paſte, part of which is made of a ſubſtance in itſelf ſcarce poſſible to be vitrified, bears the fire in a yet much more intenſe degree of heat than ours, and is in no danger of running wholly into glaſs from it.

The two ſubſtances, uſed by the Chineſe, are well known by the names of petuntſe and kaolin; and, on examining theſe, it appears very evident, that we have in Europe the very ſame ſubſtances, or, at leaſt, ſubſtances of the very ſame nature, and capable of being wrought into a Porcelain equally beautiful and fine.

Theſe are the two different ſemivitrifications, on one or other of which all the European manufactures have hitherto been founded; and it is eaſy, from the knowledge of theſe two principles, to determine, on breaking a piece of the China of our manufacture, by which of the two proceſſes it is made. It is done by fixing the half vitrified maſs of a ſubſtance which would ſoon after have been wholly vitrified; then the putting it in a crucible, into an equal degree of fire, will ſoon turn it wholly into glaſs;

this is the caſe of moſt of our European Porcelain. But, if it is made of two ingredients, the one of which is not vitrifiable, or at leaſt not by ſuch fires, then the matter will melt, but will not vitrify; this is the caſe with the Chineſe Porcelain, which is kept in fuſion a long time, yet, when cold, is China ware ſtill, ſo that this is evidently made of two ſuch ingredients.

Beſides theſe methods, there is yet another of late invention, which makes a very beautiful China, and which, if it does not afford veſſels equal to thoſe of China, yet will afford them nearly approching to thoſe, and at a conſiderably ſmaller price: This method conſiſts in reducing glaſs to China.

The fine deep blue of the old Porcelain ware of China is much valued by the curious, and it is much lamented that the ſame colour is not uſed at this time. The art ſeems at preſent to be loſt, but perhaps it might be recovered by trials; it is certain, that the Chineſe have cobalt among them, and very probably they uſed a blue colour prepared from this, before they had any commerce with us; notwithſtanding all the conjectures about their materials for colouring, this ſeems the moſt probable ſubſtance; and there is a way of preparing a colour from this much ſuperior to that now in uſe, which we call ſmalt.

Cobalt is a mineral containing arſenic and a blue vitrifiable earth. The common way of preparing ſmalt is by roaſting this cobalt in a reverberatory fire. This diſpoſes it to vitrify, and drives off the arſenic it contains in fumes, which, collecting at the top, forms true flowers of arſenic. It is very certain however from experiments, that, if this arſenic could be preſented in the cobalt, the ſmalt would be of a much finer colour; for there are ſome kinds of cobalt, which yield ſmalt without previous roaſting, and, as the arſenic is in a great meaſure contained in theſe, the ſmalts are much finer-coloured. Arſenic, added to ſmalt while in fuſion, greatly exalts in colour alſo, and there is a way of procuring ſmalt from cobalt without fire, only by diſſolving it in an acid, and precipitating that ſolution with oil of tartar; the ſmalt, thus precipitated to the bottom, is of a much finer colour than any prepared by fire, but it is much more expenſive, and prepared in leſs quantity. It is very poſſible that the Chineſe might have the art of making this kind of ſmalt before they knew us, and that to this was owing the fine blue of their Porcelain ware; but when we trafficked with them, and they purchaſed ſmalt ſo much cheaper of us, than they could make it themſelves, they naturally diſcontinued the manufacture of their own finer kind, without conſidering how greatly inferior the colour was, which the other yielded. If this be the caſe, it will be eaſy to revive this other art; and the adding the true old China blue to our

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European manufactures, in imitation of Porcelain, may give them a value which they have not at preſent.

The Chineſe had once a method of painting the figures of fiſhes and other things on the inſide of their veſſels, in ſuch a manner, that they did not appear till the veſſel was filled with water, or ſome other clear liquor; they called this ſort of China ware kialſim, that is to ſay, the concealed blue China. The art is now in a great meaſure loſt, but there may be ſome gueſs made at the manner in which it might be done at this time. The veſſels that are made in this manner, muſt be very thin; the colour muſt be laid on in form of the fiſh, or other animals, or figures on the inſide, after the veſſel has been once baked; after this colour has had time to dry, the inſide of the veſſel muſt have a ſecond coat of the ſame earth, or ſtone, of which the veſſel is made, and over this a varniſh of the common kind; the conſequence of this will be, that the figures of the fiſh in a very ſtrong colour will be buried between two coats of the ware, which together form a complete veſſel; the outſide is then to be ground down almoſt to the figures, and, when they begin to appear, a new coat of varniſh may be laid over this; the figures will then be obſcure, and ſcarce if at all perceivable; but, on filling the veſſel with water, the tranſparence of the ſides will be taken off, and the liquor will make a ſort of foil behind, which will throw out the figures of the fiſh; this might be done in any ware clear and tranſparent; the Porcelain of China would beſt ſucceed with it, but the pains and nicety required are too great.

The Chineſe make a great variety of figures on the ſurfaces of the vaſes of white China ware, and there is one kind of this greatly in eſteem among them, in which there are flowers and other figures, yet the ſurface is quite ſmooth, and the ſubſtance extremely thin; the manner of making it is this: They firſt form the veſſel of the fineſt materials as thin as they can; then, when they have poliſhed it inſide and out at the wheel, they put it into a ſtump of its own ſhape, but cut with all theſe figures; they preſs this down ſo firmly on this yet moiſt veſſel, that the impreſſion is received in a very perfect manner; and, if the ſhape of the veſſel be at all loſt, they take it to the wheel again to reſtore it; they then finiſh it with the kniſe and ſciſſars, and, when they have made it as perfect as can be, they cover it with a fine white varniſh, within and without; this fills up all the cavities of the impreſſion, and gives a perfectly ſmooth and even ſurface; yet the thickneſs of this varniſh in the traces of the figures gives it a different white, and the whole figures are as finely and accurately ſeen as if painted on the outſide; this is an artifice that might eaſily be brought to bear among us, and ſeveral of our finer wares would make a pretty figure with it.

There is a current opinion among the Chineſe themſelves, that the Porcelain ware of former times was greatly ſuperior to that which they make at preſent, and that the burying China in the earth for a long time adds to its beauty; but all this is founded on error. The truth is, that our merchants beat down the price of their ware, and thereby compel them to make a worſe kind in general; but they are able to do as fine things now as ever. What gave birth to the opinion, that burying Porcelain made it good, was, that finer pieces than ordinary are ſometimes found buried; theſe are all precious vaſes which the poſſeſſors buried by way of ſecurity, in the times of civil war; and it is no wonder that there are none but the fineſt kind found buried on theſe occaſions.

Staining or colouring PORCELAIN. The Chineſe, for a great many ages, uſed only white Porcelain; the firſt colour they employed was blue, and, after that, made uſe of many more; the ancient blues were prepared by themſelves from a kind of lapis lazuli, but we now ſupply them with the ſmalt ſo much cheaper, that it is no longer worth their while to make it themſelves; they uſed to prepare this only by giving a gentle calcination to the ſtone, and then beating it to powder, and grinding it to the utmoſt fineneſs in mortars of unglazed Porcelain ware with peſtles of the ſame. The red, which the Chineſe uſe, is made of our green vitriol, or common copperas; they put about a pound of this into a crucible, and lute on this another crucible inverted; this laſt has a hole cut in the top, which they keep covered or open at pleaſure; they ſet this crucible in a furnace of bricks ſo contrived, as to throw all the flames upon the lower veſſel, in the way of our chemiſts reverberatory furnaces; they make a large fire of charcoal all round it, and obſerve the hole at the top; for, ſo long as there aſcend thick black fumes through that, the matter is not ſufficiently calcined, they watch the going off of this fume, and, when there appears in the place a fine and thin cloud, they take away the crucible; the matter being then ſufficiently burnt, they try this however by taking a little out, and examining the colour; if it be not ſufficiently red, they let it remain longer in the fire; when they find that it is of a good colour, they take away the fire, and leave the veſſel to cool; this done, they find a cake of red matter at the bottom of the crucible, and a quantity of a finer powder about its ſides; they keep theſe ſeparate, the latter being the pureſt, the fineſt, and the brighteſt colour; one pound of copperas affords about four ounces of this colour, and this is the red, which they manage in different ſhades, and vary ſo much.

The Chineſe have alſo a white colour, which they uſe in their figures painted on the China; the ware itſelf is naturally white, and

and the varnish, or oil of stone, is a great addition to its whiteness all over. But they have yet another way of making a much finer and brighter than these, as may be seen in most of the fine China ware, where there is any white in the figures; this white is made in the following manner: They collect on the shores of their rivers a sort of agate, which is of a whitish hue, without veins, and tolerably transparent; it approaches very much to the nature of crystal, and probably crystal may be found to supply its place with us; they calcine this stone to white powder, and to every ounce of this, when ground in their Porcelain mortars to an impalpable fineness, they add two ounces of cerus in fine powder; this they mix with the varnish, and lay on in the common way of other colours.

This white mixture serves not only for the colouring white, but it is the basis of several other of those beautiful colours which we see on the China ware, and which our manufacturers have been often perplexed what to make of; their green colour is made of copper rusted with acid; and the fine deep violet colour is made of this green, by adding to it a due proportion of this white; it is not to be supposed, that this effect is produced according to the common laws of mixing colours among painters, for then the white and the green would only make a paler green. But, copper being a metal, that as well gives a fine blue, as a fine green, according to the nature of the substances it is mixed with, the white in this case alters the very nature of the green, and converts it into that fine and deep violet blue which we may draw from copper, by means of any of those volatile alcalies, such as spirit of sal armoniac, spirit of hartshorn, spirit of urine, or any the like liquor. The workmen know how to bring this blue to any degree, by putting in different proportions of each colour; there is not any admixture of them that will not produce a blue of some kind, but always, the more of the green colour is used, the deeper the blue will be, and the less the paler; the yellow is made by an admixture of seven drachms of this white, and three drachms of copperas, or more, if they desire the colour to be deeper.

These colours are laid on upon the vessel, when they have been once baked; but they do not appear, till the second baking is over, in their proper shades and tinges, and sometimes scarce at all.

The black China is much esteemed in the East, and particularly when it is ornamented with gold, this colour looking better with that ornament than any other; the black is always laid on when the Porcelain is first dried, and is prepared by mixing of a fine deep blue with seven ounces of that fine varnish, which they call oil of stones. This admixture gives a deep black, when the

colour is thoroughly dry, the veſſels are baked, and, when this is done, the gold is laid on, and the whole is baked again in a particular furnace made for that purpoſe; if they would have the black degenerate into blue, they need only add the leſs of the blue, and a little of the ceruſs, or agate white before deſcribed. They have two peculiar ways of applying the red beſides the common one, both which require a nice workman, and make the ware come very dear; they call one of theſe oils red, and the other blown red.

There are many things practiſed by the Chineſe, in their colouring and forming the ſeveral kinds of Porcelain, which may be well brought into uſe among us, and give a new value to our own wares, even though we ſhould never arrive at their art of making the thing itſelf One kind of colouring, eaſily introduced among us, would be what they call hoan ton hoan; this produces veſſels of great beauty and price, and is done in this manner: The matter of which veſſels are made for this purpoſe, need not be very fine; they uſually take any of the common veſſels baked, without having been varniſhed, and conſequently ſimply white, and without luſtre; when theſe are intended to be of one ſimple colour, they need only be plunged into a liquid varniſh or oil, as the workmen there call it, coloured with ſuch ingredients as will ſtrike the moſt lively tinges; but, if it is to be coloured in compartments, as is uſually the cuſtom with this ſort of China, it is to be done by the pencil; the uſual way is to paint theſe in pannels, one green, another blue, and ſo on; and they make a very agreeable appearance. There requires no more to this, than the laying on the colours tolerably thick, with a large pencil; but, if the pictures of animals and plants are to be given, they are to be done with the moſt permanent colours, and the veſſel, being again well baked, becomes very beautiful.

The Chineſe, who are deceivers in every thing, find the way of cheating very much, in regard to this ſort of China ware; they paint the flowers of plants, and ſome parts of the birds, &c. in very bright colours, after the veſſel has been baked. Vermilion is a fine colour, which they often add on this occaſion; but they cannot uſe this before the baking, becauſe it would be deſtroyed by the fire; theſe colours, which are laid on afterwards, cannot laſt, but ſoon rub off in the wiping, or uſing the things; the others laſt for ever, for they are laid on with the greateſt heat of all, the veſſels being put into the ſame furnaces to lay on theſe as the other things are baked in, for the firſt time. Saltpetre and powder of flints are generally the things added to the colours thus laid on, to make them penetrate and run properly. Thus for the fine deep violet colour, which makes the greateſt figure of all others; on this ware they mix together equal quantities of

the fine azure, the powder of flints, and ſaltpetre, all firſt powdered ſeparately, till perfectly fine; this is tempered with water, and then laid on with the pencil; and, though it looks rough at firſt, it comes out of the furnace of as beautiful a gloſſy hue, as any thing that can be conceived. The yellow is made by mixing together three ounces of ceruſs, and three ounces of powdered flints, and adding three, four, or more drachms of the red copperas, till the whole is of the proper degree of colour. The white is compoſed only of powder of flints and ceruſs, with a ſmall admixture of the ſaltpetre, or it will ſucceed tolerably well without; theſe are all the particulars neceſſary to be obſerved, for the making a ſort of Porcelain of great beauty, in which the nature of the ware itſelf is not concerned; ſo that it ſeems eaſy to imitate it with any of our own wares.

In the baking of this, or any other kind of coloured China, the ſecond time, there is however ſome caution to be uſed in the placing of the pieces; the Chineſe are very curious in their diſpoſition of theſe, arranging them in the moſt compact manner, and putting the little ones within the great ones; but great care is alſo neceſſary, that the veſſels do not touch one another in the parts where they are painted, for the conſequence of that would be the ſpoiling of both veſſels, as the colours would run together; the bottom of one veſſel may generally be placed, on the bottom of another, though both are painted; becauſe the rims are not painted, and they keep the painted parts from touching one another. High and narrow veſſels, ſuch as chocolate cups, &c. are very troubleſome on this occaſion; the method the Chineſe workmen take with them is this: They place a range of them ſo as to cover the whole bottom of the furnace, and they cover this with a thin bed of broad China ware, over which they place another row of the cups, and ſo on to the top, where they lay on no covering; they never bake any thing elſe with thoſe cups, when they are of this kind of twice baked Porcelain.

PORTRAIT, } is the repreſentation of a perſon, and
PORTRAITURE, } eſpecially a face, done from the life.

And in this ſenſe we uſe the term Portrait-painting, in contradiſtinction to hiſtory-painting, where all reſemblance of perſon is diſregarded.

POSTURE, in painting and ſculpture, &c. is the ſituation of a figure, with regard to the eye; and of the ſeveral principal members thereof, with regard to one another, whereby its action is expreſſed.

A conſiderable part of the art of a painter conſiſts in adjuſting the Poſtures, in giving the moſt agreeable Poſture to his figures; and in accommodating them to the characters of the reſpective

reſpective figures, and the part each has in the action, and in conducting and purſuing them throughout.

Poſtures are either natural or artificial.

Natural Poſtures are ſuch as nature ſeems to have had a view to, in the mechaniſm of the body; or rather ſuch as the ordinary actions and occaſions of life lead us to exhibit, while young, and the joints, muſcles, ligaments, &c. are pliable.

Artificial Poſtures are thoſe which ſome extraordinary views or occaſions lead us to exhibit: Such, e. gr. are thoſe of our Poſture-maſters.

POTTERY, is the art of making earthen pots and veſſels, or the manufactory of earthen ware.

The wheel and lathe are the chief, and almoſt the only inſtruments uſed in Pottery: The firſt for large works, and the ſecond for ſmall; although, in truth, they are much the ſame, as to the manner of uſing them.

The potter's wheel conſiſts principally in the nut, which is a beam or axis, whoſe foot or pivot plays perpendicularly on a free-ſtone ſole or bottom.

From the four corners on the top of this beam, which does not exceed two feet in height, ariſe four iron bars, called the ſpokes of the wheel; which, forming diagonal lines with the beam, deſcend, and are faſtened at the bottom to the edges of a ſtrong wooden circle, four feet in diameter, perfectly like the felloes of a coach-wheel, except that it has neither axis nor radii; and is only joined to the beam, which ſerves it as an axis by the iron bars.

The top of the nut is flat, of a circular figure, and a foot in diameter. On this is laid a piece of glazed earth to be turned and faſhioned.

The wheel, thus diſpoſed, is encompaſſed with four ſides of four different pieces of wood, ſuſtained on a wooden frame; the hind piece, which is that whereon the workman ſits, is made a little inclining towards the wheel; on the fore-piece are placed the pieces of prepared earth. Laſtly, the ſide-pieces ſerve the workman to reſt his feet againſt, and are made inclining, to give him more or leſs room, according to the ſize of the veſſel to be turned.

By the ſide of the workman is placed a trough of water, wherewith, from time to time, he wets his hands, to prevent the earth's ſticking to them.

In uſing the wheel; the earth being prepared, and a piece of it, ſuitable to the work intended, laid on the top of the beam; the workman ſits down, his thighs and legs being much expanded, and reſting his feet on the ſide-pieces, as is moſt convenient.

In

In this ſituation the wheel is turned round, till it has got the proper velocity; when, wetting his hands in the water, he bores the cavity of the veſſel, continuing to widen it from the middle; and thus turns it into form, the wheel turning afreſh, and he wetting his hands from time to time.

When the veſſel is too thick, he uſes a flat piece of iron, with a hole in the middle, and ſomewhat ſharp on the edge, to pare off what is redundant.

Laſtly, when the veſſel is finiſhed, it is taken off from the circular head, by a wire paſſed underneath the veſſel.

The potter's lathe is alſo a kind of wheel, but more ſimple and ſlight than the former; its three chief members are an iron beam or axis, three feet and a half high, and two inches in diameter; a little wooden wheel, all of one piece, an inch thick, and ſeven or eight in diameter, placed horizontally at the top of the beam, and ſerving to form the veſſel on; and another larger wooden wheel, all of a piece, three inches thick, and two or three feet broad, faſtened to the ſame beam at the bottom, parallel to the horizon.

The beam or axis turns by a pivot at the bottom in an iron ſtand.

The workman gives the motion to the lathe with his feet, by puſhing the great wheel alternately with each foot, ſtill giving it a greater or leſſer degree of motion, as his work requires.

They work with the lathe with the ſame inſtruments, and after the ſame manner as the wheel.

But neither the one nor the other ſerve for any more than the forming the body of the veſſel, &c.

The feet, handles, and ornaments, if there be any beſides the mouldings, being to be made, and ſet on by hand; if there be any ſculpture in the work, it is uſually done in earthen or wooden moulds, prepared by a ſculptor, unleſs the potter is artiſt enough to do it himſelf, which is very rare.

As to the glazing or varniſhing of the work, this is uſually done with mineral lead, i. e. lead pulveriſed, by throwing charcoal-duſt into the melted lead, and the aſhes of lead, which, in effect, are only its ſcum and ſcoria.

POVERTY, is repreſented, in painting, &c. by a woman in a ſorry habit, has her right hand faſtened to a heavy ſtone, and expanded wings on her left, as if ſhe was ready to fly up.—The wings ſignify the deſire to aſcend to the higheſt pitch of knowledge, but the ſtone hinders the ſoaring, and they are obliged to ſtay in their abject ſtate, and become a laughing-ſtock to the world.

Nicholas POUSSIN, was born of noble deſcent in 1594, ſtudied at Paris and Rome, practiſed after Dominichino, and the antique

antique after Flammingo; lived at Rome, excelled in history and small figures; died in 1665, aged 71 years.


Francis du POYLLI, an engraver, who wrought for several masters, used this mark.

PRACTICE, is represented, in painting, &c. by an old woman, her head inclined, a pair of compasses in one hand, and a rule in the other; she is dressed in a servile manner.—Her down looks denote her regarding only that part we tread on, and abject things, as appears by her robe; theory does not doat on custom, but relies on the true knowledge of things; the compasses denote reason necessary for the due conduct of affairs; the rule, the measure of things, established by common consent.

PRAISE, is represented, in painting, &c. by a fair lady all in white, wearing a jewel of jasper at her breast, crowned with a garland of roses; holds a trumpet in her right hand, out of which issues great splendor; her left arm extended, and seems to point at some particular person.—Handsome, because our ears are delighted with nothing more than Praise; the jasper and roses denote Praise, for those who wear them, get all mens favour and applause; the trumpet, reputation of those who deserve Praise; she points at somebody Praise-worthy.

PRAYER, is represented, in painting, &c. by an old woman in a white mantle, looking up to heaven, kneeling; in one hand a fuming censer, a heart in the other, a cock on the ground.—Kneeling denotes her being conscious of her failings; her mantle, that Prayer ought to be in secret; the heart shews, that, if it pray not, lip-labour is in vain; the incense-pot is a symbol of Prayer; the cock denotes vigilance.

PRECEDENCE, is represented, in painting, &c. by a majestic woman, having a wren on the crown of her head, and opposes an eagle with her right hand, to prevent its soaring aloft to dispatch its rival.—The wren, among the Romans, was called king of birds; and Aristotle says, the eagle often contends with it, as not enduring she should have the pre-eminence, which causes the antipathy between them.

Francisco PRIMATICCIO *Bolognese*, born in the year 1490, scholar of Gio Romano, lived in Bologna, Mantua, and in France; excelled in history-painting and architecture; died in the year 1570, aged 80 years.


These two marks are in 12 pieces, copied from the paintings of the chapel of Fontainbleau; on one side is the first mark, signifying St. Martin of Bologna, who was Francisco Primaticcio, called abbot of St. Martin's; on the other side is the second mark, which stands for Anthony Guernier, the engraver.

PRINT-

PRINTING, is repreſented, in painting, &c. by a woman in a white chequered habit, with the letters of the alphabet on it; holds a trumpet in one hand, round which is a ſcroll, inſcribed ubique; and, in the other, the ſempervive, or houſe-leek, with the word ſemper; a printing-preſs by her, with ſome implements.—White ſhews the impreſſion ſhould be pure and correct; chequered, to ſignify the little boxes for the letter; ubique ſignifies its being famous every-where.

PRINTS, are of great uſe for drawing, painting, &c. they are one of the happieſt productions of latter ages.

And they are, in our age, arrived to ſo high a degree of perfection, and good gravers have furniſhed us with ſo many on all ſorts of ſubjects, that it may truly be ſaid, they are the depoſitaries of all that is fine and curious in the world.

The origin of Prints was in the year 1460, and aroſe from one Maſo Finiguerra, a goldſmith of Florence, who having graved a plate, and caſting ſome of it in melted ſulphur, he perceived what came out of the mould was marked with the ſame Prints as his plate, by the black which the ſulphur had taken from his graving; he tried to do as much on ſilver plates with wet paper, by rolling it ſmoothly with a roller, which alſo ſucceeded.

This novelty tempted Baccio Baldini, a goldſmith of the ſame city, to try whether he could do the ſame; and his ſucceſs encouraged him to engrave ſeveral plates of the invention and deſign of Sandro Boticello; and, upon this, Andrea Mantegna, who was at that time at Rome, ſet about engraving ſome of his own pieces.

The knowledge of this invention getting into Flanders, Martin of Antwerp, then a famous painter, engraved abundance of plates of his own invention, and ſent ſeveral prints into Italy, which were marked thus, M. C.

After Martin of Antwerp, Albert Durer began to appear, and gave the world an infinite number of fine Prints, both in copper and wood, all which he ſent to Venice to be ſold.

Marco Antonio, who happened at that time to be there, was ſo charmed with the beauty of theſe Prints, that he copied thirty-ſix of them, which repreſented our Saviour's paſſion; and theſe copies were received at Rome with ſo much the more admiration, by how much the more they were finer than the originals.

At the ſame time Ugo da Carpi, an Italian painter of a mean capacity, but of a wit apt for invention, found out, by means of ſeveral plates of wood, the way how to make Prints reſemble deſigns in claro obſcuro; and ſome years after the invention of etching was diſcovered, which Parmegiano ſoon made uſe of.

Theſe firſt Prints drew the admiration of all that ſaw them, for their novelty; and the ſkilful painters, who wrought for glory,

glory, were willing to uſe them, to ſpread their works all over the world.

Raphael, among others, employed the famous Marco Antonio to engrave ſeveral of his pictures and deſigns; and thoſe admirable Prints were ſo renowned, that they carried the name of Raphael through all the countries of Europe.

A vaſt number of gravers have, ſince Marco Antonio, made themſelves famous in Germany, Italy, France, and the Low-Countries, and have publiſhed, as well by graving as etching, an infinite number of Prints on all ſorts of ſubjects, as well hiſtories, fables, emblems, devices, medals, animals, landſcapes, flowers, fruits, as, in general, all the viſible productions of art and nature.

From theſe, painters may draw every thing that may aſſiſt them in the ſeveral parts of their art; as the antique pieces, and thoſe of Raphael and Caracci, for the good goût, correctneſs of deſign, the dignity of manner, for the choice of the airs of the head, the paſſions of the mind, and the attitudes.

Thoſe of Correggio, for grace and delicacy of expreſſion.

Thoſe of Titian, Baſſano, and the Lombards, for the character of truth, for the ſimple expreſſions of nature, and, above all, for the goût of landſcapes.

Thoſe of Reubens for the grandeur and magnificence of his invention, and the artifice of claro obſcuro.

In ſhort thoſe, though they may be defective in ſome particular part of them, may yet have ſomething in them ſingular and extraordinary; for the painters may draw a conſiderable advantage from all the different manners of thoſe that have gone before them.

For ſculptors, ſtatues, baſſo-relievo's, medals, and other antique works, thoſe of Raphael, Polydoro, and the whole Roman School.

For architects, the books that concern their profeſſion, and that are full of demonſtrative figures of the invention of their authors, or copied from the antique.

For engravers, a collection of pieces of different manners, either engraved or etched.

This collection will alſo ſerve to ſhew them the progreſs of engraving from Albert Durer to the engravers of our own times, which will include the works of Marco Antonio, Cornelius Corte, the Caracci, Sadelers, Pontius, Bolſvert, Goltzius, Muler, Voſterman, Viſcher, and a great many more, who had a particular character, and who, by different ways, all of them ſtrove to imitate nature, when they did ſomething of their own invention; or pictures of different manners, when they only aimed at the faithfulneſs of imitation.

In

In comparing thus the works of all theſe maſters, they may form a judgment, which of them underſtood beſt the management of their tools, of light, and the uſefulneſs of tones, as it relates to the claro obſcuro; which of them, in their works, reconciled delicacy and force beſt, and, in their productions, were moſt ſenſible and exact; that, making a good uſe of theſe lights, they may have the laudable ambition to equal, if not to ſurpaſs theſe ſkilful maſters.

For the curious in hiſtory and antiquity, every thing that has been engraved, belonging to ſacred or profane hiſtory, the fable, the antique baſſo-relievo, the Trajan and Antonine pillars, the books of medals and ſtones engraved, and ſeveral Prints that may be helps to them in the knowledge of thoſe things they would know, or to keep thoſe things that they do know already in their minds.

In ſhort, for thoſe that would form their goût, and have a reaſonable tincture of the fine arts, nothing is more neceſſary than good Prints.

Among all the good effects that may ariſe from the uſe of good Prints, I ſhall only name ſix, by which we may eaſily make a judgment of the reſt.

The firſt is to divert the imagination, in repreſenting viſible things to us by imitation.

The ſecond is to inſtruct by a more forcible and ready manner than by ſpeech.

The third is to ſhorten the time we employ in recollecting thoſe things that have eſcaped our memory, and to refreſh it with a glance of the eye.

The fourth is to repreſent abſent and diſtant things, as if they were before our eyes, which otherwiſe we could not ſee without troubleſome voyages and great expence.

The fifth is to afford us, by theſe means, an eaſy way of comparing ſeveral things together, Prints taking up ſo little room; and we may make uſe of ſo great a number, and ſo different.

The ſixth is to give one a taſte of good things, and a tincture of the fine arts, which no gentleman ſhould be ignorant of.

If the ancients had had the ſame advantage of Prints as we have; and if they had, by the means of Prints, tranſmitted what they had done, that was fine and curious, to poſterity; we ſhould have diſtinctly known abundance of things, of which we have but confuſed ideas in hiſtory; we might then ſee the ſtately monuments of Memphis and Babylon, and the temple of Jeruſalem built by Solomon with ſo much magnificence; we might make a judgment of the building of Athens, Corinth, and old Rome, with more certainty than we can now, by the poor remains that are left of them.

It is for want of the invention of Prints, that the machines of Archimedes and the elder Hiero are loſt; and the knowledge of Dioſcorides in plants, and alſo of ſeveral animals, and a great many of the curious productions of nature, which the ſtudies of the ancients diſcovered.

PRODIGALITY, is repreſented, in painting, &c. by a woman hoodwinked, of a ſmiling countenance, holding a cornucopia with both her hands, out of which ſhe ſcatters gold and other precious things.— Blind, to ſhew they are ſo who ſpend and ſquander away their ſubſtance, without reaſon, to thoſe who are unworthy of it, for the moſt part obſerving neither rule nor meaſure.

PROPORTIONS *of a human body*. 1. The length of an upright body is equal to eight times the length of the face or head: The arm, hanging ſtraight down, reacheth within a ſpan of the knee: The length of the hand muſt be the length of the face: The arms extended muſt be the juſt length of the body.

2. Thoſe parts which are near the eye muſt be made larger and longer than thoſe that are farther off, becauſe the eye judgeth ſo of them; and, according to the diſtance from the eye, ſo muſt you vary from that which is otherwiſe the real true Proportion of thoſe.

It is ſcarce poſſible to do any thing in the art of Proportion commendably, without the knowledge of arithmetic and geometry; wherefore, the knowledge of theſe ſciences is required, as what is abſolutely neceſſary: For how otherwiſe ſhould any one underſtand the exact meaſure and Proportion of a body?

Perſpective PROPORTION, is to be judged according to the diſtance of the eye from the thing viewed, as if one part of the body comes nearer to the eye than another, it is to be repreſented in drawing, &c. ſo much bigger than the other part of the body, which trends away from the eye: As if one leg ſtands behind another, the foremoſt, coming firſt to the eye, muſt be made ſomewhat bigger and longer than the other, becauſe the eye judgeth ſo of it.

And, in like manner, you are to obſerve the ſame rule in any other part of the body, that the Proportions muſt be leſſened according to the diſtance that it is from the eye; which, notwithſtanding, cannot be much in a principal figure.

But this rule is more nicely to be obſerved in ſtately palaces, cathedral churches, or ſuch-like edifices, where there is a great variety by reaſon of their greater diſtances.

As alſo, many times, many figures ſtand far remote from the eye, and ſome nearer, which you are to take ſpecial notice of, that you expreſs thoſe that are far off at a diſtance, not too big nor plain. See the ſeveral articles in PERSPECTIVE.

PROS-

PROSPERITY, is repreſented, in painting, &c. by a woman richly clad, in one hand a cornucopia heaped up with money, in the other an oak-branch, with acorns and violets upon her head.— The horn of plenty filled denotes money neceſſary to lead a proſperous life; the oak, long life abſolutely neceſſary to it, as do the purple violets that always produce flowers.

Marcello PROVENZALE *da Cento*, the ſcholar of Paulo Roſſeti, lived at Rome, excelled in hiſtory, and in moſaic works ſuperior to any; died in the year 1639, aged ſixty-four years.

PRUDENCE, is repreſented, in painting, &c. by a woman with two faces, a gilded helmet on her head, a ſtag by her, a looking-glaſs in her left hand, in her right an arrow, and a remora fiſh twiſted about it. — The helmet ſignifies the wiſdom of a prudent man, to be armed with wiſe counſel to defend himſelf; the ſtag ſhewing that we ſhould ruminate before reſolving on a thing, the mirrour bids us examine our defects by knowing ourſelves; the remora that ſtops a ſhip, not to delay doing good when the time ſerves.

P. S. F. ſtands for Peter Stefanoni fecit; this artiſt engraved Caracci's works.

PURPLE, is a red colour bordering on violet, made principally with cochineal.

Purple was in high eſteem among the ancients, eſpecially the Tyrian Purple, which paſſed through more dyes than the reſt; and which colour was in a manner almoſt peculiar to kings and emperors.

Yet this Purple did not exceed that now in uſe; the chief reaſons why the former has been diſuſed, are, that our modern Purple is not only cheaper but finer.

The ancient or Tyrian Purple was tinged or dyed with the blood of a teſtaceous ſhell-fiſh, which the Latins call purpura.

There is now found about Nicoya in the Spaniſh Weſt-Indies a ſhell-fiſh, which perfectly reſembles the ancient purpura, and is in all probability the very ſame.

Gage relates of this fiſh, that it uſually lives ſeven years; that it hides itſelf upon the approach of the dog-days, and continues hid for 300 days running.

Theſe fiſhes are gathered plentifully in the ſpring, and, by rubbing one againſt another, yield a kind of ſaliva or thick glair, reſembling ſoft wax; but the Purple dye is ſaid to be in the throat of the fiſh, and the fineſt part in a little white vein; the reſt of the body is of no uſe. He adds, that the chief riches of Nicoya conſiſt in this fiſh.

Cloth of Segovia, dyed with this Purple liquor, is ſold for 20

crowns the eli, and is worn by none but the greateſt Spaniſh lords.

Beſides the Weſt-Indian Purple fiſhes, we have others much nearer home; and Mr. W. Cole did, in the year 1686, diſcover Purple fiſhes on the coaſts of Somerſetſhire, South-Wales, &c. where they were found in great abundance, as we find in the Philoſophical Tranſactions.

Mr. Reaumur obſerves, that this fiſh is a kind of buccinium, by which name the ancients called all thoſe ſhell-fiſhes, that bear any reſemblance to a hunting-horn; and, as Pliny relates, the ancient Purple was taken from this kind of ſhell-fiſh.

The author deſcribes the method of obtaining the colour as follows: They break the ſhell, which is very hard, holding the mouth of the fiſh downwards, ſo as not to cruſh the body; and pick off the broken pieces, and then there appears a white vein, lying tranſverſely in a little furrow or cleft, next the head of the fiſh.

In this vein is the Purple liquor lodged; ſome of which, being laid on linen, appears at firſt of a light green colour; but, if expoſed to the ſun, ſoon changes into a deep green, and in a few minutes more into a ſea-green, and in a few more into a blue; thence it ſoon becomes of a purpliſh red, and in an hour more of a deep Purple red.

And here the action of the ſun ends; but it becomes of a moſt bright beautiful crimſon, by being waſhed in ſcalding water and ſoap, which will bear waſhing admirably without any ſtyptic.

Mr. Reaumur has diſcovered another very different kind of Purple. This, he ſays, is produced in oval grains about a quarter of an inch long, and one inch thick, full of a white liquor, bordering on yellow, which cover certain ſtones or ſands, about which, the fiſh called buccina of Poictou, in France, uſually aſſemble.

Theſe he ſuppoſes to be the eggs of ſome unknown fiſh.

Theſe grains being bruiſed on a white linen cloth, at the firſt, only tinge it yellow, and that inſenſibly; but in three or four minutes turn to a very beautiful Purple red, provided the linen be expoſed to the open air; for the air of a room, although the windows be open, will not produce this effect.

This colour will fade a little by repeated waſhings.

There is likewiſe a Purple fiſh about the Caribbee iſlands; this fiſh is called Burgan, being much about the ſize of the end of a finger, and in ſhape like our periwinkles: The ſhell of it is of a browniſh azure, the fleſh white, the inwards of a very bright red, the colour of which appears through the body; and it is this that dyes the froth, which it caſts forth when taken, and which at firſt is of a violet hue, bordering on blue.

To

To cauſe theſe fiſh to yield the greater quantity of froth, they lay them on a plate, ſhake and beat them one againſt another; upon which the plate is immediately covered with the froth, which they receive on a linen cloth, and as it dries becomes Purple.

P. Labat obſerves, that this colour is found to dwindle and diſſipate in proportion as the linen that is dyed with it is waſhed.

The ſame author gives us alſo the deſcription of another Purple dye, produced by a plant that grows in the Antilles iſlands: The juice of this tree, when cut, he ſays, is of a blood-red colour, and communicates the ſame colour to cloths; though, like the former, it loſes much in waſhing.

A tranſparent PURPLE *for waſhing prints.* This may be made either redder or nearer the blue, as you would have it, by boiling four ounces of raſped braſil wood in a pint of pale ſtale beer, and half an ounce of logwood or Campeachy wood, till the liquor is heightened to the colour you deſire, which may be known, by dipping a piece of paper in it.

If you find it too red, add more logwood to the braſil wood, and it will be nearer the Purple than the former; and by this method you may humour it to any degree of Purple, by putting in either more or leſs logwood to the former compoſition, and fixing the colour with alum.

This will produce ſuch clear Purple, as no mixture of ſolid reds and blues will produce; and the receipt has been for a long time kept ſecret.

Madam Mariana, of Amſterdam, famous for painting in miniature, and her excellent manner of illuminating prints, ſays, that the beſt Purple that can be made, may be compoſed between the carmine and indigo; to ſtrengthen which, on the red ſide, you may add lake, between the lighter and darker part: And ſo lake, when it is uſed in the ſame way, on the foregoing Purple, or the liquid crimſon, produces a very fine effect.

The colour of the Purple may be varied, and made either redder, by putting more carmine; or bluer, by uſing more indigo; which, being mixed on a white Dutch tile, will ſhew itſelf.

To dye ſtuffs, &c. a PURPLE. Allow a ſufficient quantity of fair water to every pound of ſtuff, one pound of tartar, and two ounces of alum; in which boil the cloth for an hour; then take it out, cool, and rinſe it; after this, warm ſome clean water, into which put in three ounces of braſil wood; boil it half an hour, and then work the ſtuffs in it, till it becomes as red as deſired: Upon which, take them out, and put into the dye two ounces of pot-aſhes; ſtir it well about, and put in the red ſtuff once more; roll it off and on the roller, that it do not ſpot; then cool, and rinſe it out.

To dye ſilk a ſlight ſort of PURPLE. Clap the ſilk into the ſlighter red dye; but increaſe the quantity of pot-aſhes, to turn it to Purple; then rinſe and dry it.

To dye thread of a PURPLE *colour.* Firſt alum the thread with three pounds of alum, half a pound of tartar, and two ounces of braſil; dry it, and draw it through the woad or indigo dye; then rinſe it clean and dry it again; then, to brown or deepen it, take twelve ounces of braſil, being firſt boiled; which liquor divide into three parts, to be uſed at three times.

To the firſt add half an ounce of Paris red, a ſort of ſandarach, one drachm of maſtich, and a quarter of an ounce of calcined tartar; always drying the thread, after you have uſed every one of the parts of the liquor. The ſecond time add half an ounce of turmeric, two drachms of cinnabar, and half an ounce of gum arabic. The third time, when the thread becomes reddiſh, add a quart of ſharp ley, and by this means the thread will be dyed of a laſting colour.

PYROTECHNY, from πυρ, fire, and τεχνη, art, the ſcience which teaches the application of fire; but, in a more particular ſenſe, it implies the doctrine of artificial fireworks.

As rockets are the principal parts of every fireworks, we ſhall begin with a deſcription of the moulds they are made in, which are generally in the form of a cylinder, and generally made of cloſe and hard wood, as white plum-tree, box, &c. Some are alſo made of ivory, and, for rockets of extraordinary large ſizes, they are caſt in braſs or copper, and the inſide nicely turned; the foot or baſis of which, with the cylinder, wart, or half bullet, may be of ſolid wood. It is agreed, by the moſt famous artificers, that the moulds of all rockets from half a pound to ſix pounds ſhould be ſix diameters of their orifices high; but the large ſize, of four, four and an half, or five diameters. Rocket moulds, from ſome ounces to three pounds, are ordinarily ſeven diameters of their bore long; the foot, two or three diameters thick; the wart, two thirds of the diameter; and the piercer, one third of the bore; the roller, two thirds, and always one or two diameters from the handle longer than the mould; the rammer, one diameter ſhorter than the mould, and ſomewhat thinner than the roller to prevent the ſacking of the paper when the charge is rammed in. For the better illuſtration, plate VII. fig. 2, repreſents the mould, with its baſis, cylinder, bore, and piercer. A B, the interior diameter of the mould; C D, the height of the mould ſeven diameters; from D to E is the height of the breech at bottom, which ſtops the mould when the rocket is driving, and this is one and one third diameter. Upon this bottom is a ſolid cylinder, whoſe height is one diameter of the orifice A B; this cylinder is crowned with a wart or half bullet F,

having,

having a hole in the center, in which is fixed the iron or copper piercer F. 1. G, is an iron pin which keeps the bottom and cylinder together. 2. The roller. 3. The rammer. 4. A ſhorter rammer, which may be uſed with more eaſe, when the ſhell of the rocket is rammed half full. When moulds are made nine diameters of their orifice long, the ſhell, with the wart, will be twelve diameters. Theſe ſorts of rockets fly very high, becauſe of their length, and containing a greater charge than the ſhort; yet the piercer needs be no longer than ſeven diameters, but ſubſtantial, ſo as to keep in its proper attitude: At bottom it will require the dimenſions of two thirds of the diameter, and from thence tapering to half the diameter.

How to prepare caſes for ſwarmers or rockets. The caſes of rockets are made of different ſorts of things, namely, paper, wood, tin, paſteboard, linen, leather, &c.

In paper caſes, which are generally uſed, it is to be obſerved, 1. That great care ought to be taken in winding or rolling them tight and cloſe upon the roller. 2. That the concave ſtroke be ſtruck clean, ſmooth, and without wrinkles; and, 3. That each ſort of caſes be of an equal length and ſize. The rocket-ſhells being very tireſome for two perſons to make by hand, a machine has been invented for the eaſement thereof. It is made of an oaken board, about two feet wide, and three or four inches thick, planed ſmooth and cut into channels or grooves of different ſizes, for greater or ſmaller rockets; and this is commonly called the ſaddle: To this ſort of ſaddles are alſo made preſſers, whereby the caſes on the roller are preſſed down with a heavy hand; the handle of the roller having a hole in the middle, a ſmall iron bar is put in, and, as the man preſſes with one hand, he turns the roller with the other; and by this means the paper is brought as tight as it ought to be: See fig. 3, 4. For four and ſix pound ſhells it is to be obſerved, that each ſheet of paper, except the firſt and laſt, in the part where the neck is formed, be a little moiſtened. The necks of rockets may be formed ſeveral ways: For thoſe of three quarters of a pound a well-twiſted packthread will do, which having one end tied to a ſtick and put between one's legs, and the other to a poſt, will draw it cloſe with eaſe. The large ſhells require more ſtrength, one end of a ſtrong cord being faſtened to a poſt that is fixed upon a bench, and the cord conveyed over a pulley and through a hole in the bench to a treddle, to which the other end of the cord is made faſt, and the other to a belt with a hook. The necks of extraordinary large-ſized rockets are drawn tight with ſtrong cords over ſcrews and round-necked irons. The wooden, tin, and paſteboard rockets, are ſupplied with necks turned of wood, and faſtened through the ſides of the ſhell with wooden pegs.

How to prepare the charges for rockets, and order the fires thereof to be of various colours. Before you charge the ſhell of the rocket, ſee that the powder is well worked and cleanſed, that the ſaltpetre is thoroughly refined and made into an impalpable powder, that the brimſtone be well cleanſed, that the coals be of lime-tree, or other ſoft wood well burnt, powdered, dried, and ſifted; and all theſe ingredients well mixed together and ſearced through a fine ſieve. After this, weighing the proportionable quantities of each, put the mixture into the work-board, and grind it therein with the grinder for an hour together. Then try your charge by ſifting a little on a table; and if, when lighted, it burns away in an even fire and does not fly up, it is a ſign that it is worked enough. The charge being thus prepared, put it up in a box or other dry veſſel, in a place not too hot, cold, or damp: And when you charge your rocket ſprinkle and mix the charge with a little brandy. If a rocket mounts even and high, and gives a report as ſoon as it turns, it is a ſign of being made to perfection; but, if the rocket burſt as ſoon as it is lighted, then the charge is too fierce; or, if it riſes a little and falls back, then the charge is foul and weak; the former is rectified by adding more charcoal, and the latter by ſome meal powder. For the reſt, it is to be obſerved, that the larger the rockets are the weaker muſt be the charge; and, on the contrary, the ſmaller they are, the ſtronger muſt be their charge.

If you would repreſent a fiery rain falling from the rocket, mix among your charge a compoſition of powdered glaſs, filings of iron, and ſaw-duſt: This ſhower, on account of the varieties of its colours, is commonly called the peacocks tail.

To exhibit variety of colours, mix among the charge a certain quantity of camphire, which produces a white or pale fire; roſin, a red and copper colour; blood-ſtone, nealed and beaten to an impalpable powder, will yield a blood-red; ſulphur, a blue; ſal armoniac, a green; raw antimony, a reddiſh or honey colour; ivory ſhavings, a ſhining ſilver; filed agate-ſtone, an orange; and pitch, a dark and deep-coloured fire. The charges are commonly divided into three degrees, viz. white, grey, and black. It is to be obſerved, that to the grey charges are four ingredients, viz. meal-powder, ſaltpetre, brimſtone, and charcoal; to the white charges three, viz. ſaltpetre, brimſtone, and charcoal; and to the black charges two, viz. meal-powder and charcoal.

Charges for landſwarmers or ſmall rockets. Meal-powder, one pound, and charcoal one ounce; or meal-powder ſix ounces, ſaltpetre four ounces, brimſtone one ounce, charcoal one ounce and three quarters. This laſt may be uſed for the fuſee of others.

Charges for water rockets. Saltpetre two ounces, brimſtone

half an ounce, and charcoal one ounce and an half, or only half an ounce.

A general charge for rockets of two and three ounces. Meal powder twelve ounces, ſaltpetre two ounces, brimſtone half an ounce, and charcoal one ounce and an half.

For one pound and one and a half pound rockets. Meal-powder three pounds, ſaltpetre four ounces, brimſtone one ounce, and charcoal four ounces and an half. Or, powder two pounds, ſaltpetre one pound four ounces, brimſtone one ounce, and charcoal eight ounces and an half.

For ſix, eight, or nine pound rockets. Meal-powder twelve pounds three quarters, ſaltpetre ſix pounds, brimſtone two pounds and an half, and charcoal five pounds and an half. Or, ſaltpetre nine pounds, brimſtone one pound nine ounces, and charcoal three pounds and an half.

For eighteen or twenty pounders. Powder twenty-two pounds, ſaltpetre ſixteen pounds, brimſtone ſeven pounds, charcoal thirteen pounds and an half. Or, ſaltpetre twenty-four pounds, brimſtone twelve pounds, and charcoal twenty-ſix pounds.

To bore the rockets or ram them over the piercer. Since the boring of rockets is one of the principal things belonging to them, for their performing well, the bores are to be made in proportion to the ſize of the rockets. For ſome are bored tapering to a point, others are hollowed ſquare, running alſo to a point; and others are rammed over a round piercer, which is fixed in the wart of the rocket mould, fig. 2, and ſtands perpendicular, running tapering to a point. The ſtronger the charge of the rockets, the narrower ſhould be the bore; and, the weaker the charge, the deeper and wider. For, if a ſtrong charge is bored too deep, it will break in aſcending; and, if it is bored too little, and the charge too ſlow, it will fall to the ground without effect. In middling charges they are commonly bored two thirds of the tube from the neck. The boring muſt be performed ſtraight and even, and this had beſt be done by a turner. Rockets ſhould be bored but a few days before they are to be uſed, and kept in dry places.

The garniſhing of rockets. They may be furniſhed both within and without with crackers. On the outſide it is done in the following manner, viz. that end of the rocket which is ſolid is divided into three equal parts, and then bored in the middle of each, quite to the charge: At the bottom of theſe holes paſte a ring of thin paper, upon which fling ſome meal powder; then fix in the crackers, ſtuffing the ſides with ſome tow or flax, and over that paſte a covering of paper, to cloſe the opening between the rocket and crackers.

The inſide is furniſhed thus: Put a ſmall round board, in

which you have bored ſeveral holes, upon the charge; then ſtrew meal powder in them, and fix your crackers; cover it with a cap, and paſte it to the outſide of the rocket.

You may alſo furniſh rockets both within and without with ſparks, ſtars, and fire-rain, when thoſe materials are joined either within or without. And you may alſo fix ſwarmers to the large rockets, by boring a touch-hole in both, filling them with meal powder; and, after the touch-holes are fixed exactly on one another, glue them together with a bandage of paper. Thus you may mark a winding figure with a thread on a rocket, and place your ſwarmers accordingly. You may alſo, inſtead of ſwarmers, place on the top of the rocket a globe charged with the compoſition of rockets, and filled with crackers. This globe muſt have a touch-hole, and be lighted before the rocket is let off, and it will have a good effect.

How to proportion the rocket poles or ſticks. It is common to tie but one rocket to a ſtick; but ſix or ſeven may be placed round the thick end thereof, which muſt be worked with hollows or grooves. But, as no rockets would aſcend high, if it were not for the true balance obſerved in the pole or ſtick, you muſt further obſerve, that theſe ſticks are made of light, dry, and ſtraight wood, and muſt, to one and two pound rockets, be ſeven times as long as the rocket, which proportion muſt alſo be obſerved in the larger ſort. That end to which the rocket is tied, muſt be two fifths, and below one ſixth of the diameter thereof. After the rocket is tied to the ſtick, take it four inches from the neck of that rocket not yet bored, and from the neck of the bored one, about two or three fingers, ſo as to ſtand on the back of a knife, or one's finger, in an equilibrium. In large rockets the poles muſt be eight or nine rockets long, and, to take their balance, you take their libration from the neck.

Rockets without ſticks. Fix to the ſmall rockets, from four to eight, nine, or ten ounces, after they are bored and rammed, four wings, in the nature of the wings of an arrow, made either of light wood or paſteboard, which are glued croſswiſe to the rockets. Their length muſt be two thirds, and breadth, below, one ſixth of the length of the rocket; the thickneſs may be one eighth of the diameter of the mouth thereof. This ſort of rockets are fired on a board or ſtand, placed between four ſmall ſticks. Others faſten one end of a wire, about a foot long, and twiſted like a ſcrew, to the mouth of the rocket, and hang an iron ball to the other end, of an equal weight with the rocket.

Of the girandel cheſt, how, and what rockets are fired therein. The girandel cheſt is made of wood, according to the number of rockets you deſign to fire at once. The method of firing thoſe rockets is performed ſeveral ways, but the beſt for lighting girandel,

randel, or other fireworks, is a match prepared on purpoſe in the following manner: Cut ſome ſlips of paper of the length of half a ſheet, and about one or two inches wide; roll and glue each of them together over a little, round, and ſmooth ſtick of a quarter of an inch thick; this done, take it off, and, when dry, fill it with the compoſition hereafter mentioned, ramming it in by little and little with a leſs ſtick than that upon which you rolled the ſhell. This ſort of matches are put upon pointed pincers, and, when they are lighted, cannot be extinguiſhed either by rain or wind.

The compoſition. Meal powder three ounces and an half, ſaltpetre ſeven ounces, and brimſtone three ounces three quarters, moiſtened with linſeed oil. Or, meal powder twelve ounces, ſaltpetre four ounces, brimſtone three ounces and an half, charcoal an ounce and a quarter, turpentine one ounce, and tallow three ounces and a quarter: Firſt melt the turpentine and tallow together, then ſtir the other ingredients among it, and pour it into the paper ſhells: When dry, they are fit for uſe.

Of rockets that run upon lines or ropes from one place to another. To give theſe the more ſhow, ſome garniſh them with figures of various devices.

The firſt ſort is contrived by fixing two iron rings, or a wooden tube, to a rocket, filled with a certain quantity of a ſuitable compoſition, and bored as uſual. Through theſe rings or tubes is put a line on which the rocket is to run, as far as the duration of its combuſtible matter will allow it to reach, where it ſtops. This ſort is repreſented in fig. 5.

For the ſecond ſort, fill any rocket whoſe orifice is equal to that of the former, but much longer, to the height of four diameters; bore it to the depth of three and an half. Upon this compoſition put a cap or little wooden partition, without any hole through it; glue this to the inſide of the rocket, or ſecure it any other way to prevent the fire, when arrived to that place, from catching hold of the compoſition contained in the other part of the caſe. This done, charge the remainder of the rocket to the ſame height as before, namely, to four diameters; three and an half muſt be bored: After this, choke the rocket at top, and make a little receptacle for the priming, as at the other end; or elſe fit a round piece of wood to it, with a hole through the middle, which you cover with a little cap. To this add on one ſide a tube, made of a very thin iron plate, which fill with meal powder; then bore a hole through the ſide of the rocket, near the other ſide of the partition that is in the middle; fill it with meal powder: This is done to convey the fire through the tube to the receptacle, where it lights the other rocket, and, conſequently, obliges it to return back to the place whence it came.

came. The upper part which holds the priming muſt be covered with paper, as well as the ſmall tube that conveys the fire from that to the other end. This rocket alſo muſt have two iron rings, or a wooden tube, to run along the line. You may, for the more diverſion, tie ſmall paper crackers all round, as in fig. 5, 6, and 7, where *a* is the rocket, *b* the tube, or, inſtead thereof, ſome rings that ſlide upon the cord; *c* the partition, *d* the pipe for the communication of the fire from one rocket to another. To theſe running rockets may be fixed flying dragons, pigeons, Mercuries, Cupids, or any other fancies.

Charges for the line rockets. Meal powder three ounces, ſaltpetre one ounce and an half, and charcoal three ounces, will be a proper proportion for three, four, or ſix ounce rockets.

The following charges may be uſed for ſixteen and twenty-four pounders.

Meal powder one pound, ſaltpetre half a pound, brimſtone three ounces, and charcoal five ounces. This charge is proper for line rockets of one pound and three quarters.

How to join two rockets to one another, the one to burn in the water, and the other ſuddenly to fly up into the air. Take two rocket-ſhells of equal dimenſions, fill one with a good charge quite full; the other charge, bore and tie to a ſtick as uſual; the former glue upſide down to the middle of the latter, and towards the end tie it round with a cord, which is ſomewhat larger than the rocket-ſtick: To the end thereof faſten a ring, and in that a a leaden ball, which is to keep both rockets in a due poſition on the ſurface of the water; through this ring put the end of the ſtick, which is provided with a croſs ſomewhat wider than the diameter of the ring, and keeps the cord, ring, and ball under water. The communication of the fire muſt be made below the rockets by a ſmall pipe filled with meal powder very ſecure, ſo as to keep it from the water: For, as ſoon as the water rocket is burnt to the end, the fire will make its way through the pipe, and the land rocket will diſengage itſelf by its force from the caſe of the other; and leave the cord, ring, and ball, behind, in the water. See fig. 8, *a* the land rocket, *b* the water rocket, *c* one end of the cord tied to the water rocket, *d* the other end of the cord faſtened to a ring and leaden ball, *e* the wire that keeps back the ring, *f* the little pipe for the communication of the fire.

How to make water-rockets, water-brands, water-cats, water-ducks, &c. that turn themſelves in the water. The caſes for the water-brands, and alſo their ſticks, muſt be made ſomething longer than ordinary, and filled with a compoſition of coarſe coal duſt, tanners bark rubbed ſmall, or ſaw-duſt, but in the ſame method as ſky-rockets. The whole caſe is to be nine or ten

ten diameters long, and muſt be divided into five equal parts, and charged two fifths full of the compoſition; upon this charge a report of a quarter high, and upon that fine iron flakes, in order to ſink it; then cover it with paper, and draw it together with a cord: The charge is lifted up a little in the neck, and ſupplied with brandy dough, or meal powder moiſtened with brandy, then glued over with paper; and, having fixed a wooden ſwimmer below the neck, it is dipped in wax and pitch, and then it is ready.

Water-crackers which turn in the water are thus prepared. The caſe is made nine or ten diameters long, the neck is drawn quite cloſe, and charged with meal powder almoſt half full; upon this a partition is made with a hole in it, then put corned powder for a report; upon that is placed another partition: The reſt is filled with meal powder, and the end tied cloſe, and the paper cut ſhort at both ends. When theſe crackers are to be fired, make a touch-hole at the end of both reverſed, and having filled them up with meal powder, and covered them well with brandy dough, you may fire and fling them into the water, having before dipped them in melted wax or pitch.

It is to be obſerved, that to the water-cat caſes one may proceed thus, from one ounce to half-pound crackers; but, if larger, they are too heavy, and will not ſo ſoon turn up again in the water, till ſome parts of them are conſumed; wherefore, to remedy this, put in the caſe, firſt, three meaſures of charge; upon this put a little corn powder, then, again, two meaſures of charge and a little corn powder, and proceed thus as far as the report. Upon the charge is placed a partition of wood with a hole in it, on that a report of good corn powder, then tie it cloſe: Further, open it a little, putting ſome meal powder to it mixed with brandy; and, when you would uſe it, anoint it all over, with either greaſe or linſeed oil. The water-crackers, or divers, are commonly rammed in one, one and an half, and two ounce caſes, ſtratified in the manner juſt mentioned, taking two meaſures for each lay of water-cat charge, and a little corn powder between each.

Other ſorts of rockets may be repreſented ſwimming in the water. Theſe are made in the ſame manner as the one, or one ounce and an half rockets, bored one third in the charge; then put into a paper cylinder, with two ſmall wooden heads or baſes, having a hole bored to the center of each. The height of this cylinder muſt be equal to half of the rocket, and the hole thro' the center of each head fitted exactly to the rocket. When you have fixed every thing to a nicety, put it into melted wax or pitch, and, when cold, you may fire and fling it into the water.

You may alſo put theſe ſorts of rockets into a paper cone, and faſten

faſten it to the neck of the rocket; or elſe in a bladder full of wind; which, inſtead of dipping into melted wax, do over with a mixture of four parts of linſeed oil, two parts of bole ammoniac, one part of white lead, and half a part of aſhes.

Along with the reports of the rockets may be mixed certain ſparks and ſtars intermixed with meal and corned powder; to this is fixed an iron or wooden tube B, fig. 9; from each end of this goes another ſmaller tube C D, all having communication with one another, alſo with the compoſition and the ſtars. Theſe are filled with meal powder, covered with paper dipped in wax or pitch; and, a counterpoiſe A being fixed below, it is fired. As ſoon as the compoſition is burnt down to the cap, it is conveyed through the ſmall tubes to the lower part, where, letting out the partition, it diſperſes the powder, ſtars, &c. into the air.

Charges for water-rockets. Meal powder ſix ounces, roſin one ounce, charcoal three quarters of an ounce, ſaltpetre one ounce, corn-powder one ounce. Or, meal powder two pounds, ſaltpetre four pounds, brimſtone one pound, charcoal four ounces, coarſe coal three ounces, tanners duſt two ounces and an half, ſaw-duſt two ounces, glaſs powders one ounce, ſinking-lead one ounce and three quarters for one-pound rockets.

Charge for water-crackers. Meal powder four ounces, ſaltpetre five pounds, brimſtone two pounds and three quarters, tanners duſt one pound and an half, charcoal one pound, coarſe coals two pounds and three quarters, glaſs duſt four ounces, lead three quarters of an ounce.

Charge for tumbling water-crackers. Meal powder three quarters of a pound, charcoal four ounces, for one and an half or two pound rockets.

Charge for water-cats. Meal-powder two parts, ſaltpetre four parts, brimſtone one part, coarſe coals two parts, ſaw-duſt two parts, and antimony three parts, moiſtened with linſeed oil.

Of rocket-fliers, and the manner of charging them. Theſe are of two ſorts, namely, the ſingle and double ones: The latter are made in the following manner:

Have a nave or button turned, the dimenſion of three inches, together with two knots upon it, perpendicular one againſt the other, of an inch and an half long, and ſo thick that both rocket-caſes may fit over them; there muſt alſo be a hole of the third of an inch in the center of the nave, for the iron pin to go through, on which it is to fly. After this take two rocket-caſes of equal dimenſions, which are choked quite cloſe at the neck, and glued: Ram in the charge ſo far as to leave only room to fix them on the two knobs upon the nave. This done, bore into both rockets, near the cloſed up necks, ſmall touch-holes; and one more near the pin, in that which is to burn firſt: From this hole

hole carry a little pipe to the hole near the neck of the other rocket, having firſt filled it with meal powder, that, when the rocket is almoſt burnt out, the ſecond may be lighted by it. The three touch-holes ſtand in one row, and you may on the other ſide fix a couple of reports, which will cauſe a ſwifter motion.

The ſingle fliers are made with more eaſe; the neck of theſe muſt not be tied cloſe as in the former, but they muſt be fired in that place; but theſe do not turn ſo well as the double ones.

Of fire-wheels. Of theſe are three ſorts, viz. ſingle, double, and triple: Some of their fellies are of a circular form, others hexagonal, octagonal, or decagonal; ſome like a ſtar without fellies. Moſt of theſe are made to run perpendicular to the earth, others parallel; and all may be ordered ſo as to ſerve on land or water.

The fire-wheels that are to be uſed on land turn on an iron pin or bolt, drawn or ſcrewed into a poſt. The nave is turned of cloſe and firm wood in which the joiners glue the ſpokes, according to the number of the fellies, which muſt be carefully joined together. Then have a groove hollowed round, ſo deep that the rocket or caſe may be about half lodged therein. Fig. 10.

The double wheels muſt have their fellies turned ſtronger and wider, with a groove for the rockets, not only at top, but alſo on one ſide thereof, inclining the necks of the rockets at top to the right hand, and thoſe of the ſides to the left. Fig. 11.

A triple wheel has a groove at top, and one at each ſide; the matches are laid from one groove and rocket to another, with ſmall pipes filled with meal powder. You may alſo make a triple wheel on a long nave, and obſerve the placing of the rockets on each, contrary one to the other; and the communication you are to make with ſmall pipes, which, after they are fixed, you are to cover and glue over with paper.

Your rockets being ready, and cut behind a little ſhelving, bore them; the firſt, three diameters of its orifice; the ſecond, two and three quarters; the third, two and a quarter; the fourth, two diameters; the fifth, one and three quarters; the ſixth, one and an half; the ſeventh, one and a quarter; the eighth, one diameter; always the latter ſomething ſhorter than the preceding: After this they are primed with meal powder, worked up with brandy; and, when dry, glued in the above-deſcribed grooves. You muſt bear the firſt fired rocket's neck up above the reſt, underlaying it with a tin plate, or any thing elſe: The time you muſt obſerve in the head of the laſt fired one, wherein you put the charge of a report. You may alſo glue, on every end of the rockets, a report of paper, with ſmall copper pipes or goſe-quills, which are fixed one end in the ſide of the rocket, and the other in the report. When all is dry, then you may

cover

cover your wheel, on one or both ſides, with linen or paper, in what form you would have it.

The horizontal, or parallel wheels, are made like the others with ſellies, or out of one intire piece: Their grooves are furniſhed with rockets, and their planes garniſhed with crackers.

A fire-wheel, which is to whirl horizontally in the water, muſt be ordered thus:

Take a pretty large wooden diſh, or bowl, that has a broad flat rim; alſo a ſmooth dry board, ſomething larger than the diſh, and formed into an octagon: In the middle of this board make a round hole that will hold a water-ball, ſo that one half be received in the diſh, and the other half riſe above the ſurface of the board: Nail this board upon the rim of the diſh, and fix the ball in the middle, tying it faſt with wire; then glue your rockets in the grooves which are made round the edges of the board, laying them cloſe to one another, ſo that, ſucceſſively taking fire from one another, they may keep the wheel in an equal rotation. You may add, on each ſide of the wheel, a few boxes filled with crackers or cartouches, erected perpendicular; and alſo fix double and ſingle crackers, following in a range, one after another, for two or three fires, or as many as the extent of the wheel will admit.

For your private fuſees, obſerve that you conduct one from the rocket, which is to be fixed to the compoſition of the ball in a channel.

Fill theſe channels with meal powder, and cover them cloſe with paper; alſo lay a train of fuſees of communication from the rockets to a cartouch, and from that to the reſt. Fig. 12.

Laſtly, when all is ready, and covered, dip the whole machine into melted pitch, and ſecure it from the injury of the water. The ball is fired firſt, and, when lighted, you place it gently on the ſurface of the water, and then fire the rocket.

To try a fire-wheel, firſt weigh one of the rockets, tie it to a felly with cord, and, according to that weight, fill little long bags full of ſand, tying them likewiſe on the reſt of the fellies; then hang the wheel on an iron pin, fire the rocket, and, if it turns the wheel, then you may aſſure yourſelf it will be complet when finiſhed.

Wheels formed like ſtars are to have their ſpokes fixed upright in the nave, like other wheels, only with grooves on on of the ſides of each, wherein you glue the rockets. At the bottor of each rocket is made a little hole, from whence the fire is con veyed through little pipes, filled with meal powder, up to th next, and ſo round; then cover it with linen cloth, or paper, i the ſhape of a ſtar, and place it on the iron axis.

Obſerve that all the rockets uſed in fire-wheels have their neck tie

tied close, leaving only a small conveyance from one rocket to another; the last of all must be well secured below, where you may place a strong report of corned powder. Fig. 12.

Charges for fire-fliers, and wheels of four, five, and six ounce rockets. Meal powder three pounds, salt-petre two pounds, charcoal five ounces, and sea-coal three ounces. Or,

Meal powder three pounds, brimstone eight ounces, and charcoal ten ounces.

These charges may be used for triple wheels, and must be bored one third with a bodkin.

For wheels of one pound rockets. Meal powder six pounds, salt-petre three pounds, brimstone one pound seven ounces, charcoal two pounds nine ounces, and tanners dust one ounce.

The bore must be an inch and an half.

For wheels of three and four pound rockets. Meal powder nine pounds, salt-petre one pound and an half, brimstone one pound two ounces, and charcoal three pounds four ounces.

The first rocket in these wheels is bored but one and an half of its diameter.

Some general remarks upon rockets. 1. Rockets must have a proportionable height, according to the diameters of their orifices.

2. Their necks must be drawn or choked firm, and, to prevent the cord giving way, they must be glued over.

3. Prepare your composition just before you want it; let it neither be too damp nor too dry, but sprinkle it over with a little oily substance, or a little brandy.

4. When you drive your rockets, put always equal quantities of composition in your cases at a time.

5. Carry with your mallet an even and perpendicular stroke, when you charge your rockets.

6. The cavities must be bored upright and perpendicular, exactly in the middle of the composition.

7. Bore your rockets just before you use them; then handle them carefully, lest their form should be spoiled.

8. Let the sticks and rods be well-proportioned, straight, and smooth.

9. Put your rockets, when compleated, in a place that is neither very damp nor dry.

10. Let most of your rockets have at top a conical figure; by that means they will the more easily shoot through the air.

Defective rockets are chiefly discovered by the following observations:

1. When they are fired, and in mounting two or three perches they break and disperse.

2. When they remain suspended on the nail, and waste away slowly without rising at all.

3. When

3. When they form an arch or a ſemicircle in their aſcent, and return to the ground before their compoſition is burnt out.

4. When they mount in a winding poſture, without an uniform motion.

5. When they move on ſlowly and heavily.

6. When the caſes remain on the nails, and the compoſition riſes and diſperſes in the air.

To make ſingle and double cartouches, or boxes, tubes, ſtars, ſparks, &c. When boxes or cartouches are adjuſted and fixed in machines of great fireworks, they afford, among the towering rockets, great delight among the ſpectators: Theſe boxes are made either of wood, paſteboard, or copper, and charged in proportion to their ſtrength; if made of wood, they muſt fit exactly, and receive each other, ſo as to ſeem but one continued piece; and, if paſteboard, you muſt glue on a foot at bottom, of a hand high, to each of them. The inſide of theſe machines muſt exactly fit and correſpond with the outſide of the cartouches themſelves, and be ſo contrived as to ſlip into one another.

Having formed them, put them to dry in a moderate heat; too great a heat will ſhrivel them up; when dry, take one after another off the cylinder, and immediately clap into them round wooden bottoms, the edges being firſt done over with glue, and ſprig them on the outſide to make them faſt.

The ſingle boxes are to be charged in the following manner: 1. Put in ſome corned powder. 2. Upon that charge fix a round paſteboard, well fitted to the concave ſide of the box, which has five or ſix ſmall holes, and is on both ſides laid over with meal powder tempered with brandy. 3. Put upon the paſteboard a little meal powder, and upon that well-pierced crackers, ſo as to ſtand with their necks downwards: The principal rocket is put in the middle, with the neck downwards, open at both ends, ſo that, being lighted above and burning down, it may fire the reſt of the crackers, which are blown up in the air by the corn-powder. 4. The empty ſpaces between the large fire-caſe and the crackers are carefully filled up; and the cartouch is ſtuffed at top with tow, or ſaw-duſt, boiled in ſaltpetre ley. 5. The cartouch is covered with a cap, which is glued very cloſely thereon; and, for the great caſe reaching out of the cartouch, make in the middle of the cap a hole, through which it is put, and cloſe the opening by gluing ſome ſlips of paper round it. The fire-caſe is looſe, covered with a paſteboard cap.

Double boxes or cartouches. In double caſes it muſt be obſerved, that the bottoms of the upper boxes ſerve for the covers of the lower, a hole being made, through which the compoſition of the lower box is fired, after the upper rocket has forced away the empty box, which has already diſcharged its load. The upper box

box you cover as has been ſhewn above. If there are more than two cartouches upon one another, they are called burning tubes, which, when fired, ſhorten by degrees; the cartouches following one another till all are fired. Some are intermixed with artificial globes, and ſeveral other fancies, which afford great pleaſure to the ſpectators.

Theſe boxes, or cartouches, are placed in long caſes made for that purpoſe. The vacancies about the cartouches may be filled up with ſand.

Another ſort of fire-tubes. Theſe are made of ſolid, hard, and dry wood, of what height and thickneſs you pleaſe: Bore the middle of the wood one third or a quarter of its diameter; after which, divide the whole height into equal parts, each exactly correſponding with the ſky-rockets you deſign to fix upon them, but rather a ſmall matter ſhorter. All theſe diviſions are cut ſloping downwards, except the uppermoſt, which muſt run out in a cylinder. On the rims of each of theſe diviſions make a groove all round, of about a finger's breadth; in theſe grooves bore ſmall holes, by which the fire may be conveyed through pipes from the cavity of the tube to light the rockets that ſtand behind the paper cartouches, which muſt be made faſt to the wood, leſt they ſhould fly up along with the rockets.

The conſtruction of the hollow tube is expreſſed in fig. 45; where A repreſents the fire ſtars and ſparks, interſperſed with corn powder; B, a box filled with paper or crackers; C, a fire-ball, or water-globe; D, another box filled with crackers. The hollows between theſe fires are filled up with corn powder, in order to blow up the globes and boxes one after another.

The ſtars and ſparks made uſe of on this occaſion are prepared in the following manner:

Take of beaten ſaltpetre five pounds and an half, meal powder two pounds four ounces, and brimſtone one pound twelve ounces. Or,

Sulphur two ounces and an half, ſaltpetre ſix ounces, fine meal powder five ounces, frankincenſe in drops, maſtic, and mercury ſublimate, of each four ounces; white amber and camphire of each one ounce, antimony and orpiment of each half an ounce.

Theſe ingredients, being well beaten and ſearced through a ſearcer, muſt be ſprinkled over with a little glue or gum water, and formed into little balls of the bigneſs of a ſmall nut; then dried in the ſun, or near a fire, and laid up in a dry place to be ready for playing off with fireworks. When you uſe them, wrap them up in tow.

Sparks are prepared thus:

Take ſaltpetre one ounce, ditto melted half an ounce, meal powder half an ounce, and camphire two ounces: Having melted

theſe by themſelves, when you uſe them, put them together in an earthen pot; pour on them water in which gum tragacanth has been diſſolved, that the whole may have the conſiſtence of a pretty thick liquid: This done, take one ounce of lint, which before has been boiled in brandy, vinegar, or ſaltpetre; when dry, throw it into the compoſition; mix and ſtir it about till it has ſoaked it up; then roll them up in pills about the bigneſs of great pins heads, and ſet them to dry, having firſt ſprinkled them with meal powder.

Some of theſe pyramidical tubes and fireworks are now and then fired in large rooms, upon grand entertainments, in miniature, wherein are employed odoriferous pills, and other ingredients that have a fragrant ſmell: Theſe pills are commonly compoſed of ſtorax calamita, benjamin, and gum juniper, of each two ounces; olibanum, maſtic, frankincenſe, white amber, yellow amber, and camphire, of each one ounce; ſaltpetre three ounces, lime-tree coal four ounces; beat theſe ingredients very fine, and incorporate them together; then moiſten it with roſe-water, wherein before you have diſſolved gum arabic, or gum tragacanth; you may form them into pills, and dry them in the ſun or before a fire.

Single tubes or caſes are only filled with compoſition, and to the outſide are faſtened crackers, ſerpents, or cartouches; theſe caſes being generally in the form of a cylinder, you are to trace out a winding line from the top to the bottom, on which cut holes to the depth of two or three inches: Into theſe holes contrive to fix paper caſes with wooden bottoms, wherein you may put any ſort of rockets you pleaſe; but take care you provide little holes, to lead from the great tube to the corn powder under your rockets.

A fire-tube may all be ſurrounded with cartouches, diſpoſed in a ſerpentine order, glued and nailed as ſecure as poſſible, out of which are diſperſed great numbers of ſquibs.

Another fire-tube. The circumference of this cylinder is, by a cord, divided into a certain number of equal parts; and, being brought into a polygonal figure, cutting away the convex part, it is brought into angles.

Then bore the plain ſides with a number of perpendicular holes, ſo as to penetrate obliquely to the great boring in the middle; into theſe holes thruſt crackers, ſquibs, or ſerpents.

The mortars muſt be turned of wood: Bore the bottoms, and add a chamber to them; each chamber muſt be one third or one half of the depth of the fluting, and the breadth one ſixth only. Theſe chambers are deſigned to hold corn powder.

Secure thoſe mortars on the outſide with ſtrong paper caſes, and nail them faſt in the hollow channels, whoſe cavity they are

to

to fit exactly: Their length may be double their breadth. Each mortar muſt contain a globe made of paper, with a wooden bottom, and their chambers muſt be charged with corn powder.

Theſe mortars fix in a ſpiral line, one only in each fluting, with iron ſtays, and bind the middle with an iron plate, faſtened on each ſide of the interſtices; but, before you fix the mortars, you muſt not forget to pierce little holes in the tube, and to fix the touch-holes of your mortars exactly upon them, priming both with meal powder.

Of ſalvo's. Theſe in fireworks are a great number of ſtrong iron reports, fixed either in a poſt or plank, and fired off at once.

Charge for cartouches or boxes. Meal powder ſix ounces, ſaltpetre one pound eight ounces, brimſtone four ounces, and charcoal four ounces and an half.

Charges for fire-tubes. Meal powder ſix pounds, ſaltpetre four pounds, charcoal two pounds, roſin half a pound, tanners bark five ounces, moiſtened with a little linſeed oil. Or,

Meal powder five pounds, ſaltpetre three pounds, charcoal one pound ſix ounces, roſin three quarters of a pound, not moiſtened.

A preſervative for wood againſt fire. Take brick-duſt, aſhes, and iron-filings, of each an equal quantity; put them together in a pot, pour glue water or ſize upon it; then put it near the fire, and when warm ſtir it together. With this ſize waſh over your wood work, and when dry repeat it, and thus it will be proof againſt fire.

The manner of preparing and making letters and names in fireworks. Order a joiner to cut capital letters of about two feet long, and three or four inches wide, and an inch and an half thick; hollow a groove out of the body of the letters, a quarter of an inch deep, reſerving for the edges of the letters a quarter or half an inch of wood. If you would have the letters burn of a blue fire, then make wicks of cotton or flax, according to the bigneſs or depth of the grooves in the letters, and draw them leiſurely through melted brimſtone, and place them in the grooves; bruſh them over with brandy, ſtrew meal powder thereon, and again with brandy and gum tragacanth thinly diſſolved, and on that ſtrew meal powder again; when dry, drive ſmall tacks all round the edges of the grooves, and twiſt ſmall wire to thoſe tacks, that it may croſs the letters, and keep the cotton or flax cloſe therein; then lay over it brandy paſte; ſtrew over that meal powder, and at laſt glue over it a ſingle paper.

If you would have the letters burn white, uſe dry touchwood, which cut into pieces of an inch thick; put them in melted ſaltpetre over a fire, let them lie therein till the ſaltpetre is quite ſoaked through the wood; after which mix powdered ſaltpetre with good ſtrong brandy; take ſome cotton, and with a ſpatula

or your hands work that, the ſaltpetre and brandy together; then ſqueeſe it out, ſtrew the cotton over with powdered ſaltpetre, and thereof make wicks, having firſt placed the touchwood in the grooves; lay the wicks over that and the vacancies about it, and then proceed to make it tight and ſecure, as has been directed above.

Another method for burning of letters is uſed when they are formed by a ſmith of coarſe wire, about a quarter of an inch thick; then get ſome cotton ſpun into match thread, but not much twiſted; to two yards of this take one pound of brimſtone, ſix ounces of ſaltpetre, and two ounces of antimony; melt theſe ingredients in a kettle, firſt, the brimſtone by itſelf, and then the reſt all together; when melted, put in the match thread, and ſtir it about till it has drawn in all the matter; then take it out, and ſtrew it over with meal powder; let it dry, and wind it about the white letters; faſten theſe upon a board that has been well laid over with a preſervative to keep it from taking fire. When you have lighted one letter, all the reſt will take fire immediately.

Letters cut in a ſmooth board, which is made to ſlide in grooves of a cheſt, are ordered thus: The lid of the box is made full of holes, for conveying away the ſmoke of the lamps or wax tapers, which are ſet behind to illuminate the letters; behind the cut-out letters is paſted oiled paper of various colours, which, when the lamps are lighted, has a fine effect. By theſe means various changes may be made in repreſenting devices, names, coats of arms, &c. but this way is more practiſed on the ſtage, in plays, than in fireworks.

Charge for burning letters with caſes. Meal powder ſix ounces, ſaltpetre one pound, mixed with petroleum.

To order and preſerve leading-fires, trains, and quick matches. Matchpipes, the moſt preferable of which are either iron, lead, or wood, ſhould be ſtrengthened, or cloſely twiſted round with the ſinews of beaſts, ſteeped in diſſolved feather-white, and filled with ſlow charges, which ought to be well tried, or elſe furniſhed with match thread dry and well prepared; and afterwards either joined to the grooves made in the boards, or only laid free from one work to another. The joinings of the pipes muſt be well cloſed and luted with potters clay, ſo as to prevent the fire from breaking out: Theſe pipes muſt alſo have little vent-holes, to give the fire air, or elſe it would be ſtifled, or burſt the pipes; but theſe holes muſt be ſo contrived that the flame may not vent itſelf in the open air, and at ſome diſtance from the works, ſo as to prevent touching of them.

All burning matches are to be as diſtant from the machines as poſſible, to prevent accidents.

Charges for fuſees or leading-matches. Meal powder three ounces

and an half, ſaltpetre four ounces, brimſtone one ounce and three quarters, and charcoal one ounce and three quarters. Or,

Meal powder four ounces, charcoal half an ounce, and coarſe coal half an ounce.

Of water-balls. Balls in fireworks are of different forms; ſome are globular, ſome oval, ſome conical, ſome cylindrical, and others in the ſhape of a pendant or drop.

The water-balls are commonly made of knitted cord bags, or of wood; thoſe made of bags are ſhaped like oſtriches eggs, and are 1. filled with their proper charge; 2. the outſide is dipped in glue, and wound about with hemp or flax, till it is a quarter of an inch thick thereon; 3. this ball is then coated over with cloth, and, about the touch-hole, glued over with a piece of leather; 4. the touch-hole is bored with a gimlet, and ſtopped with a wooden peg; 5. at the bottom of the ball pierce a ſmall hole through to the compoſition, in which faſten a ſmall copper pipe, furniſhed with a paper report, together with a leaden balance; glue the report faſt to the ball, then dip the ball in melted pitch, open the touch-hole, and prime it with a quick burning charge.

Theſe balls keep a long time under water before they riſe, and, if a true balance is not obſerved in the lead, or the ball be overcharged, they will ſink to the bottom and burn out; therefore you muſt well obſerve that, when a water-ball, without the balance, is two pounds weight, you muſt give it four, or four ounces and an half of lead; but, if it weighs one pound and an half, balance it with three, or three ounces and an half.

Water-balls made of wood, which ſwim and burn upon the water without any further effect, are of two ſorts, viz. ſingle and double: The ſingle ones are made thus: Have a hollow ball turned ſomewhat oblong, with a vent-hole; fill that with a good and well tried charge, but not too cloſe; prime the end with ſome meal powder, then glue a ſtopple in the hole, which muſt be thrice as thick as the ſhell of the ball, in which, beforehand, the counterpoiſe of lead is caſt; when dry, make a hole at top, large enough for a two ounce cracker to enter; through this, ram down the charge in the ball, and fill it quite full with the ſame compoſition; then glue it over with a paſteboard; and, laſtly, fix a ſmall copper pipe through the ſtopple, having bored a hole through it for that purpoſe; to the pipe faſten a paper report; when this is done, dip the whole in pitch.

Double water-balls are ſuch which, after one is fired, diſcharge another: Theſe have chambers at bottom filled with gunpowder; on theſe put a cover of thick leather, which has ſeveral holes in the middle, and goes cloſe to the ſide; on this ſtrew meal powder, and place thereon a fire-ball charged.

Both ſorts of balls are tied round with ſeveral rows of ſtrong packthread. Obſerve that,

1. The little chamber at bottom ought to be the fifth of the breadth of the whole ball, and its height one and an half thereof.

2. That the water-ball ſhould be encompaſſed with a water-ball compoſition.

3. The partition is added for this purpoſe, that, when the powder in it ſhall have the fire conveyed to it through the pipes, it may with more force blow up the ball in the body of the firſt; this, taking fire at the other hole, will burn upon the water for ſome time, and then, to the aſtoniſhment of the ſpectators, on a ſudden it will blow up the ball that was in it.

How to prepare a water-mortar, or water-pump, with ſeveral tubes. Take ſeven wooden tubes, wrap them about with cloth pitched, or dipped in glue, twiſting them round very tight with packthread: They may be of what height, thickneſs, and diameter you pleaſe, only the middlemoſt muſt be of a greater height than the reſt; bind them together in one cylindrical body; to the bottom fix a round board with nails, and then with ſtrong glue ſtop up all the crevices, to prevent the air getting to the compoſition. Put into each tube a little corn powder, about half an inch high; upon that put a water-ball; upon that a ſlow compoſition; then again corn powder; upon which put a water-ball filled with ſquibs; on that again a ſlow compoſition; then corn powder, and then a light ball; over this put a third time a ſlow compoſition on corn powder, which you muſt cover with a wooden cap; on this fix running rockets, not too cloſe. The remainder of the tube fill with a ſlow charge, and cloſe it up. Then get a ſquare or round piece of plank for a float-board, with a round hole in the middle large enough to receive the ends of all the tubes, which cover cloſe. Thus prepared, dip it in tar or melted pitch; then put the rocket into the orifice of the middle tube; the compoſition of which ſhould be ſlower than the reſt.

If you would have the tubes take fire all round at once, pierce the ſides of the great one with ſmall holes, correſponding with thoſe in each of the other tubes.

In the ſame manner a large water-ball is charged with ſeveral little ones, and with crackers.

How the water bee-hive, or bee-ſwarm, both ſingle and double, may be prepared. For the former, have an oblong globe turned, whoſe length is two diameters of its breadth, or proportioned to the height of your rounding rockets, which place round the wooden tube; this muſt be filled with a compoſition of three parts of powder, two of ſaltpetre, and one of brimſtone; at the lower end of the globe fix a paper cracker; the letter is a counterpoiſe of lead; at top fix a round board for a balance.

The

The globe is filled with the following compoſition, viz.

Two pounds of ſaltpetre, eight ounces of brimſtone, eight ounces of meal powder, and twelve ounces of ſaw-duſt: Then the top is cloſed with a ſtopple, which has a touch-hole in the middle; then put a good deal of meal powder in the ſmall tubes up to the touch-holes, and, after you have placed your rockets upon that, fill the vacancy round with a little corn powder, glew over them paper caps, then dip the globe in pitch, but not over the paper covering, and fix a counterpoiſe at bottom; and, when the fire has burnt half way or further in the large tube, it will communicate through the touch-hole, and diſcharge all the rockets at once.

Charges for ſingle water-globes. Corn-powder half a pound, ſaltpetre ſixteen pounds, brimſtone four pounds, ivory ſhavings four ounces, ſaw-duſt boiled in ſaltpetre-ley four pounds. Or, meal powder one pound, ſaltpetre ſix pounds, brimſtone three pounds, iron filings two pounds, and roſin half a pound.

Charge for double water-globes. Saltpetre four pounds ſix ounces, brimſtone one pound four ounces, ſaw-duſt half a pound, and coarſe coal-duſt ſix ounces, moiſtened with a little vinegar or linſeed oil.

Charge for bee-ſwarms. Meal powder thirteen ounces and a half, ſaltpetre ſix ounces, brimſtone two ounces and a half, fine charcoal three ounces, coarſe charcoal one ounce, and fine ſaw-duſt three ounces.

Odoriferous or perfumed water-balls. Have theſe turned about the ſize of large walnuts, and fill them with the following compoſition, viz. meal powder three ounces, ſaltpetre twelve ounces, frankincenſe one ounce, myrrh half an ounce, and charcoal three ounces mixed with oil of ſpike. Then light and put them into water: And this is generally done in a large room at grand entertainments.

Method of making the globes diſcharged out of a mortar. Take hollow canes or common reeds, cut ſo as to take up the cavity of the globe, and fill them with a weak compoſition made of three parts meal powder, two of coal, and one of brimſtone, moiſtened with a little linſeed oil, excepting the lower ends of them which reſt upon the bottom of the globe, which muſt have meal powder only, moiſtened likewiſe with the ſame oil, or ſprinkled over with brandy and dried; the bottom of the globe cover with meal powder mixed with an equal quantity of corn powder; then cover it well a-top, and wrap it up with a cloth dipped in glue; the priming muſt be of the ſame compoſition with the reeds.

To form letters and all ſorts of figures which may be repreſented in the open air in a dark night. Provide a wooden globe as above, only the priming chamber muſt be the height and breadth of one

ſixth of the diameter of the whole globe. Beſides this chamber there muſt be another for corn powder; the height and breadth muſt be equal to one ſixteenth of the diameter of the globe; the vent-hole muſt be a quarter of the priming chamber. You muſt alſo have another globe in a cylindrical form, the bottom of which muſt be rounded on the outſide; the cover muſt be let a little into the inner ſurface of the cover of the great globe, to keep it firm, placing this leſſer globe perpendicularly over the chamber which is filled with corn-powder.

Fill the cavity of the little globe with running rockets, ſtars, and ſparks; having furniſhed the vent-hole with meal powder, and the chamber with corn powder, put about the ſame globe the ſame compoſition mixed promiſcuouſly together, and on this fit a flat wooden ring. Then take two long thin ſlips of whalebone, join them together parallel, ſo as to have their bendings oppoſite to each other, and make a ſtraight piece; join two of theſe long pieces by two ſhorter pieces at both ends, ſo as to make a right-angled parallelogram; within this frame form your letters, either of wire or whalebone, and, having fixed them about a hand's breadth from each other, wrap them neatly round in quick tow; then ſteep your letters in brandy, wherein ſome gum arabic has been diſſolved, and in drying ſtrew them over with meal powder. To have your letters deſcend perpendicular to the horizon, faſten two ſmall weights to your frame; but, if parallel, have a weight at each corner. Thus bend it round to go into the inner circumference of the great globe, and let it reſt perpendicular on the wooden ring, and fill the empty places about the letters with meal powder; then cover it up, and prepare the globe fit for the mortar, and it will have a delightful effect.

To prepare the quick tow. Take flax, hemp, or cotton, of two or three ſtrands, twiſt them ſlightly, and put them into a clean glazed earthen pan; pour on them good white wine vinegar four parts, urine two parts, brandy one part, purified ſaltpetre one part, meal powder one part; boil it all together over a quick fire till all the moiſture is evaporated: Then ſtrew meal powder on an even board and roll your match therein, then let it dry in the ſun or ſhade. This ſort of match burns very quick, but, if you would have it burn ſlower, make the liquor weaker, boiling the match in ſaltpetre and vinegar only, and, ſtrewing meal powder in it, let it dry.

To prepare the light balls proper to be uſed at bonfires. Take two pounds of crude antimony, four pounds of brimſtone, four pounds of roſin, four pounds of coal, and half a pound of pitch; having powdered all theſe ingredients, put them into a kettle or glazed earthen pan, over a coal-fire, and let it melt; then

then throw as much hemp or flax into it as may be ſufficient to ſoak it up; then take it off the fire, and, whilſt it is cooling, form it into balls. You may wrap them up in tow, and put them either in rockets or globes.

To prepare the paſte for ſtars and ſparks. Take five ounces and and a half of meal powder, one pound twelve ounces of brimſtone. Or, ſaltpetre two pounds, brimſtone fourteen pounds and a half, and meal powder ſix ounces.

Q.

QUARTATION, is a method of purifying gold, by melting three parts of ſilver with one of gold; and then caſting the mixture into aqua-fortis, which, diſſolving the ſilver, eaves the gold at the bottom in the form of a black powder; his operation more commonly is called parting and depart.

Peter QUAST uſed theſe two marks, making a P and Q; and at other times his mark was P. Quaſt, as in certain groteſque pieces.

QUICKSILVER. See MERCURY.

To order QUILLS. If a gooſe Quill be too thick or hard, crape it to a proper thickneſs with the back of your penknife; hen wet it with ſpittle, and roll it in the ſcrapings, and they ill ſtick to it; then rub it bright with a piece of woollen cloth, r lappet of your coat.

If the Quill be ſoft, put the head of it into ſoft aſhes, keeping it ſtirring until it is ſoft; you may alſo preſs it almoſt flat on our knee while hot, with a back of a penknife, and afterwards ith your finger reduce it to a roundneſs, and it will harden it; nd, when it is cold, you may make your pen.

If you have a number of Quills to harden, which makes them it the better; ſet water and alum over the fire, and while it is oiling put a handful of Quills, the barrels only, in for a miute, and lay them by.

Or they may be put into a pot of hot ſand, and taken out and atted, &c. as before, then the ſkin rubbed off with a piece of ſh-ſkin, which will not only harden, but render them clear and oliſhed.

To colour the barrels of QUILLS *red.* Take a pint of vinegar, ut into it half an ounce of alum powdered, vermilion, and the ne ſcrapings of Braſil wood, of each one ounce; boil them unthe liquor begins to thicken; then ſtrain it, and put the liuor into a narrow deep ſkillet, and when it boils hold the barls of the Quills in the liquor, until they change their colour, nd this will harden them alſo.

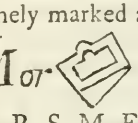
To

To tinge them yellow, you may uſe a pennyworth of ſaffron, and an ounce of turmeric alſo in powder.

R.

R. is the mark of Ravignano, and underneath R. V. I. i. e. Raphael Urbino in.

RAGE, in drawing, &c. may be repreſented with the ſame motions as deſpair, but yet more violent; for the face will be almoſt quite black, covered with a cold ſweat, the hair ſtanding up an end; the eyes wandering, and in a contrary motion; the eye-balls ſometimes rolling towards the noſe, and ſometimes backwards towards the ears; all the parts of the face will be extremely marked and ſwelled. See plate XXI.



Mark Antonio RAIMUNDI, of Bologna, called of France Raphael Urbin, engraver, his marks; which pieces he marked with the letters R. S. M. F. intimating by the two firſt letters Raphael Sancio, by the two laſt Marco Francia fecit.

He likewiſe uſed other marks, i. e. B. S. ſignifying Bononienſis ſculptor.

In his plates copied from Buonaroti, he put MI. AG. FLO. i. e. Michael Angelus Florentinus; and afterwards for his own mark he uſed that of Mantegna, which may alſo ſignify Marcus Antonius fecit.

In the life of Chriſt engraven by him, and copied from the plates of Albert Durer of Venice, he marked the leaves with Albert Durer's mark.

The RANUNCULUS. Of this flower there are many ſorts, the fineſt of which are reddiſh and orange-coloured: For the firſt of theſe uſe vermilion, with a very ſmall quantity of gamboge; add carmine to ſhade with, and finiſh with this laſt colour, and a little gall-ſtone.

For others uſe Indian lake inſtead of carmine, but eſpecially at the heart.

The orange colour may be imitated with gamboge, finiſhed with gall-ſtone, vermilion, and a little carmine, leaving ſome yellow ſtripes or ſpots.

The green of the ſtalks may be done with verditer and maſticote; to which muſt be added iris green for ſhading: The leaves muſt be of a deeper green.

RAPTURE. If admiration is cauſed by an object above the comprehenſion of the ſoul, as the power or greatneſs of the ſoul, then the motions of Rapture will be different from that of veneration.

For the head will be bowed towards the heart, the eye-brows raiſed, and the eye-balls lifted up.

The head ſo bowed ſeems to mark the humility of the ſoul.

For this reaſon alſo, neither the eyes nor eye-brows are drawn towards the glands, but liſted up towards heaven, where they ſeem fixed to diſcover what the ſoul cannot underſtand.

The mouth is open, having the corners a little raiſed, which intimates a kind of extaſy. See plate V.

If, on the other hand, the object that cauſes our admiration have nothing in it deſerving our eſteem, this want of eſteem will produce ſcorn.

This paſſion or affection may be alſo further expreſſed by the body thrown backwards, the arms lifted up, the hands open, and the whole action ſhall ſhew a tranſport of joy.

R *Silveſtro da* RAVENNA, ſcholar and imitator of Mark Antonio, from 1535 to 1560. He employed himſelf wholly in engraving the pieces of Raphael and Julio Romano.

R. B. T. A. ſtands for Robetta.

REALGAL, } a mineral, a kind of red arſenic, differing
RISALGAL, } from the common arſenic, which is white; and from orpiment, which is yellow.

REASON, is deſcribed, in painting, &c. armed like Pallas, upon her helmet a crown of gold, a drawn ſword in her right hand, a lion bridled in her left, before her ſtomach a breaſt-plate with the numeral cyphers.—The crown teaches that Reaſon alone can bring valiant men upon the ſtage, and into credit; the ſword intimates the extirpating vice that wars againſt the ſoul; the bridle, the command over wild paſſions; the cyphers, that, as by them real things are proved, ſo by Reaſon we acquire thoſe that relate to the common welfare.

RED, is one of the ſimple or primary colours of natural bodies, or rather of the rays of light. See COLOURS.

Some reckon ſix kinds or caſts of Red; viz. ſcarlet Red, crimſon Red, madder Red, half-grain Red, lively orange Red, and ſcarlet of cochineal; but they may all be reduced to theſe three, according to the three principal drugs which produce the colours, which are vermilion, cochineal, and madder.

The fine ſcarlet, called ſcarlet of the Gobelins, is made of agaric water prepared with bran, and turned a little ſouriſh, woad, and vermilion; ſome dyers add cochineal, and others fœnugreek, brightening it with ſour water, agaric, tartar, and turmeric.

Crimſon Red is made with ſour water, tartar, and cochineal neſtic.

Madder Red is made with madder, to which ſome add realgal and arſenic; others common ſalt, or other ſalts, with wheat lower; or agaric with ſpirit of wine with galls or turmeric.

The

The half grain is made with agaric or four water, half cochineal, half madder, and fometimes turmeric.

As to the lively orange Red, the ftuff muft be firft laid in yellow, then in a liquor made of goats hair, which has been boiled feveral times with madder, and now diffolved over the fire with certain acids, tartar, &c.

The half crimfon is made of half madder, half cochineal.

The fcarlet of cochineal, or Dutch fcarlet, is made with ftarch, tartar, and cochineal; after it has been firft boiled with alum, tartar, fal gemmæ, and aqua-fortis, in which tin has been diffolved.

Befides thefe feven Reds, which are good and allowed colours, there is alfo a brafil Red, which is difcouraged, as fading eafily.

Of the feven good Reds, only four have particular cafts or fhades; the madder Red, the crimfon Red, the lively orange Red, and the fcarlet of cochineal.

The cafts or fhades of crimfon are flefh colour, peach colour, carnation-rofe colour, and apple-tree flower colour.

Thofe of madder are flefh colour, onion-peel colour, and flame colour.

Thofe of the orange are the fame with thofe of the crimfon.

Scarlet, befides the fhades of all the reft, has fome peculiar to itfelf, as cherry colour, fire colour, &c.

RED; in painting in oil colours, they ufe a Red called a cinnabar, or vermilion; and another called lacca.

In limning and frefco, for a violet Red, inftead of lacca, they ufe a natural earth found in England; for a brown Red they ufe oker.

Obfervations on RED *colours.* Red lead is the neareft to an orange colour, and, mixed with yellow berries, it makes a perfect orange. It is ufed for buildings and highways in landfcapes, being mixed with a little white.

It is the only bright colour to fhadow yellow garments with, to make them appear like changeable taffety; and to colour any light ground in a picture, and feveral other ufes.

Cinnabar lake; this is good for fhadowing yellow garments with in the darkeft places; as alfo vermilion mixed with white, only it makes a fky colour, with white and Red lead a flefh colour; and is an excellent colour of itfelf to colour garments with.—This colour being dear, you may therefore, for ordinary ufes, inftead of it ufe Red ink, thickened upon the fire; which will ferve very well, and better than lake, unlefs it be very good.

Red ink is made by boiling brafil rafped in vinegar, mixed with beer, adding a little alum to heighten the colour; boil it until it tafles ftrong on the tongue, then ftrain it out, and keep it

it close ſtopped for uſe.—But if it be made a fleſh colour, or a ſky colour, then it muſt not be thickened.

Vermilion is a moſt perfect ſcarlet colour; it is ſo fine, that it needs no grinding, but may be tempered with your finger, with glair or gum water; and ſo uſed, mixed with a little yellow berries, it makes it the lighter and brighter colour, and is then principally uſed for garments.

A glorious colour of Eaſt-India cakes. In uſing theſe cakes, you may take one, or a part of one of them, and put it into a horſe-muſcle ſhell, adding a little fair water, juſt enough to wet it all over, letting it lie ſo about a quarter of an hour; then ſqueeſe it hard againſt the ſhell, or wring it out between your fingers, and there will come forth an admirable tranſparent colour, which will ſerve inſtead of lake, if the Red cake be good.

Theſe cakes are commonly counterfeit, and good for little; but you will find by cutting a little way into them, if they be good, they are as Red within, as they are without; if naught, they look pale and whitiſh within.

Of dying RED *colours.*

To dye the beſt RED *colour.* Take clear ſtale wheat-bran liquor, or ſour tapwort, a ſufficient quantity, alum bruiſed three pounds; put all into your copper, enter your twenty yards of broad cloth, and handle it, boil it three hours, cool and waſh it well; take freſh wheat-bran liquor a ſufficient quantity, madder five pounds; enter your cloth at a good heat, handle it to a boiling heat, cool it and waſh it well; take freſh wheat-bran liquor a ſufficient quantity, let it boil, and put in urine a gallon, enter your cloth, boil half an hour, cool it and waſh it, and it is done.

Note, Urine is not much uſed now, and ſome do not waſh the cloth out of the alum.

Another RED *dye.* Take clear fair water a ſufficient quantity, alum bruiſed three pounds; boil and enter twenty yards of broad cloth, boil it two hours and an half; take it out, and range it, and hang it up a little while to let the water drop from it. Take clear ſtale bran liquor a ſufficient quantity, madder four pounds, ſteeped firſt an hour in ſmall beer; bring it almoſt to a ſcalding heat, and enter your cloth, and handle it ſwiftly for the ſpace of half an hour; take your cloth into urine, after which waſh it well, and it is done.

Another excellent RED *dye.* Take lixivium of unſlaked lime five gallons, braſil ground two pounds and a half; boil to the half, then put to it alum twenty ounces; keep it warm, but not to boil: Then what you would dye in this liquor dip it into a ley made of aſhes of tartar, letting it dry; then dip it into the ley.

To

To colour barley ſtraw, &c. RED. Boil ground braſil in a lixivium of pot-aſhes, and in that boil your ſtraw.

To dye a RED *bluſh colour.* Take ſtale clear wheat-bran liquor ſix days old, a ſufficient quantity; alum three pounds and an half, Red tartar half a pound; melt theſe, and enter twenty yards of broad cloth; handle and let it boil three hours, take it out and waſh it well, but ſome waſh it not. Take freſh liquor a ſufficient quantity, of the beſt madder three pounds; enter your cloth, and handle it to a boiling heat, cool and waſh it again: Laſtly, take freſh bran liquor a ſufficient quantity, let it boil, enter your cloth, let it boil a quarter of an hour, cool and waſh it well again.

A RED *bluſh colour in grain.* Take ſtale ſour clear bran liquor a ſufficient quantity; alum three pounds and a half, Red tartar half a pound; enter twenty yards of broad cloth, boil it three hours, cool and waſh it, take freſh clear bran liquor a ſufficient quantity, beſt madder three pounds, enter and boil again. Take freſh bran liquor a ſufficient quantity, grains in fine powder four ounces, Red tartar three ounces; enter your cloth, boil an hour or more, keeping your cloth well under the liquor, then cool and waſh.

Of dying RED *roſe, or carnation colour.*

To dye a RED *roſe a blood-red, or carnation colour.* Take liquor of wheat bran a ſufficient quantity, alum three pounds, tartar two ounces; boil and enter twenty yards of broad cloth three hours, cool and waſh it; take freſh clear bran liquor a ſufficient quantity, madder four pounds, boil and ſadden according to art.

Another RED *roſe, or carnation colour.* Take wheat-bran liquor a ſufficient quantity, alum two pounds, tartar two ounces; boil and enter twenty yards of camblet, and boil it three hours, after which take it out, and waſh it very well; then add madder a pound, enter and boil it again, cool and waſh it; after which take clear liquor a ſufficient quantity, cochineal in fine powder two ounces, tartar two ounces; enter your camblet, boil and finiſh it.

To dye a RED *crimſon.* See CRIMSON.

To dye ſilk RED. For every pound of ſilk put four handfuls of wheaten bran into the quantity of two pails of water; boil them together, and pour the liquor into a tub, and let it ſtand all night, clarify it, and put into half the water half a pound of alum, and a quarter of a pound of tartar of Red wine, reduced to an impalpable powder; add alſo half an ounce of turmeric, reduced to a fine powder; boil them together for a quarter of an hour, ſtirring them very well; then take the kettle off the fire and

and immediately put in the ſilk, and cover the kettle very cloſe, that none of the ſteam may evaporate.

Let it ſtand thus for three hours, then take out the ſilk, and rinſe it very well in cold water; then beat it very well upon a block, and let it dry.

Then beat a quarter of a pound of galls ſmall, put them into a pail of running river or rain water; boil them for a full hour, then take the kettle off the fire, and, when it is grown juſt cool enough for you to endure your hand in it, put in the ſilk, and let it lie and ſteep in it for an hour, then take it out, and dry it.

For every pound of ſilk allow one pound of braſil, boil it, and ſtrain it; then boil the wood again, adding cold water to it; wave or turn the ſilk about in it, and take it out of that without wringing, when it has ſufficiently imbibed the tincture; then add a little pot-aſhes, or put them into cold water, and turn the ſilk up and down in it, and, when it is Red enough, rinſe and dry it.

To dye ſilk a madder RED. The preparatory liquor is made as before. Put half a pound of madder into the quantity of a pail of river water, let it boil for a full hour, but take an eſpecial care that it does not boil over; then pour it off into a vat, adding half an ounce of turmeric, and ſtir it about with a ſtick; and when it is cold put in the ſilk; and when you take it out rinſe it very well, and beat it on the block; then boil half a pound of good braſil wood, in about a pailful of preparatory liquor, for full half an hour; then pour it off into a vat, into which put the ſilk, and afterwards cleanſe and ſcour it as with ſoap; then rinſe it in river water, &c. according to art.

To dye woollen cloth, or ſtuff, madder RED. Boil three pounds of alum, two pounds and a half of white tartar, a quarter of a pound of fœnugreek, and two quarts of wheat bran in the copper; then put in the ſtuff, and let it boil for two hours and an half; then take it out, and cool it very well, and hang it out for one night; then, in order to dye it, put into the copper ſeven pounds of madder, an ounce and a half of aqua-fortis, a pint of wheat bran, and ſtir them about very well, and rinſe the ſtuff for the dye, and then wind it very ſwiftly upon the roller, and tumble it about the copper for an hour at leaſt, taking care that the fire keep it boiling hot; after which, take it out and rinſe it.

To dye a Genoa madder RED. Take three pounds of alum, three pound and a half of tartar; boil the ſtuff in it an hour and half; then pour off the water, and pour freſh water into the kettle; then make a liquor of ten pounds of madder, a quarter of a pound of pot-aſhes, and ſome urine, and, when it hath diſſolved one night, boil it off.

To dye the Engliſh madder RED. Take two pounds and a half

of

of alum, one pound of pulverifed white-wine tartar; boil them in water, and when it is proper put in your wet cloth; then put into the fuds, for the quantity of twenty-fix pounds weight of cloth, half a pound of tempered aqua-fortis; and afterwards put in the cloth, ftir it about very well, and very fwiftly; boil it for two hours, and let it remain in the fuds twelve hours, and then rinfe it out.

To finifh it.—Take four pounds of madder, an ounce and an half of gumm-gutta, an ounce and an half of purified pot-afhes, one pound of wheat-bran; mix them in water, and pour them with the liquor into the fuds; then ftir it, and work it as is proper, that it may not be fpotted, and you will find this an extraordinary dye.

To dye wool or filk of the Polifh RED. For every pound of wool or filk take a pailful of water, warm it, and put in four ounces of galls pulverifed; and when it begins to boil put in the madder, which is to be proportioned according to the depth or lightnefs of the dye; ftir them together, and dye the filk or wool for a quarter of an hour; and while it is boiling put in fome pot-afhes, and dye it a quarter of an hour more, then rinfe it out, and you have the true Polifh Red.

REFINING, is the art of purifying a thing, or of rendering it finer, cleaner, and purer: It is chiefly underftood of metals, fugar, and falts.

REFINING *of gold.* This is performed three ways, viz. either with antimony, fublimate, or aqua-fortis; the laft of thefe is the moft ufual, and leaft dangerous of them all, and is called depart or parting.

To Refine gold with antimony, they make ufe of a wind-furnace, and a common crucible of a fize anfwerable to the quantity of gold to be refined; always taking care that the gold and antimony, both together, do not fill the crucible more than half full.

After the gold is melted in the crucible, the antimony is thrown in in powder: The proportion of the antimony to the gold is eight ounces to a pound, if the gold be between fixteen and twenty-two carats fine; if it be under fixteen carats, then they ufe five quarters of a pound to eight ounces of gold; and ftill the greater quantity of antimony is required, the coarfer the gold is.

As foon as they have put the antimony into the crucible, they cover it, and, after they have charged the furnace with charcoal they put on the capital, which is let to ftand till fuch time as the crucible is left quite bare; then they take off the capital, and leave the crucible to cool in the furface of itfelf, till fuch time as they can take it out by the hand; then they break it, to get out the button or culot, which is a mafs of fine gold remaining at the bottom

bottom, with the fæces of the antimony, the ſilver and copper alloy, and ſometimes little particles of gold itſelf over it.

But, notwithſtanding the gold thus prepared is very pure, yet the antimony gives it ſuch a harſh brittle quality, that it ceaſes to be ductile, and muſt be ſoftened by the fire with ſaltpetre and borax, to bring it to itſelf.

In order to this operation, they prepare what is called a dry coppel, which is a coppel made of crucible earth, which does not imbibe like the coppels made of aſhes.

When the coppel has been ſufficiently heated in the Refining furnace, they put the gold into it, and cover it up with charcoal.

As ſoon as the gold is diſſolved, which is very ſoon, by reaſon of the remains of the antimony, they blow it with the bellows to drive the mineral intirely away, which now goes off in ſmoke; and add to it, as ſoon as the fumes ceaſe, a little of ſaltpetre and borax in powder, which collect the impurities, that remained upon the diſſolution, and fix the gold in the coppel in form of a plate.

Then the gold is taken out of the coppel, and melted again in a crucible, with an addition of two ounces of ſaltpetre and borax in powder to each eight ounces of gold, as ſoon as it has ceaſed to fume; and then it is caſt into an ingot, which upon trial is found to be twenty-three carats twenty-ſix or thirty ſeconds finer.

As to the particles of gold, which may have been left behind with the alloy, in the fæces of the antimony; they get them out by a dry coppel, with the ſame meltings and ingredients, as were uſed in ſoftening the former.

And when they are certain by the eſſay of the ſhare of gold, which that matter contains; they Refine it to ſeparate the copper, and afterwards make the depart.

As for the gold which may be left ſticking to the dry coppels; they get that out by breaking and pulveriſing the crucibles, and by repeated waſhings of the powder of them in ſeveral waters.

The method of REFINING *gold by means of ſublimate.* They begin the proceſs like that with antimony, i. e. in the ſame furnace, with the ſame coal, the ſame fire, and the ſame crucibles.

When the gold is melted in the crucible, they caſt in the ſublimate; not in powder, but only broke in pieces.

The proportion is, if the gold be of twenty-two carats, an ounce or ounce and an half, or even two ounces to eight ounces of gold to be refined; if of twenty carats, three ounces; and, if it be only from eighteen to twelve carats, five or ſix ounces; in which laſt caſe, they part the ſublimate into two, and put in one half at a time, with the gold in a new crucible; which, when

the operation is over, leaves the gold of eighteen or twenty carats, according as it was in fineneſs before.

When they have done this, they raiſe it by fire, as follows:

Having put the broken ſublimate into a crucible, with the melted gold, they cover the crucible immediately to ſmother the mineral; and then furniſh the furnace with charcoal, and put on the capital.

Then a quarter of an hour after they take off the capital, laying the crucible bare, and give it the cool air, i. e. blow off all the aſhes and other impurities that may be floating on the liquid gold, with a pair of bellows, the nozzle of which is crooked.

This is repeated again and again, till all the impurities of the gold are carried off, by virtue of the ſublimate; and that they find it of a bright glittering colour; after which, it is taken out of the crucible, and the gold is caſt into an ingot

This method of Refining by ſublimate is both cheaper and more complete than that by antimony; but they are both exceedingly dangerous, by reaſon of their ſulphureous and arſenical exhalations; the only difference in their malignity conſiſts in this, that the poiſon of the antimony is ſlower than that of the ſublimate.

For the method of Refining gold by aqua-fortis, ſee DEPART.

Gold may alſo be refined with lead and aſhes; but this method is ſeldom uſed, excepting in eſſays.

The method of REFINING *ſilver.* There are two ways of doing this; the one is with lead, and the other is with ſaltpetre.

That performed with lead is both the beſt and cheapeſt; although that with ſaltpetre ſtill obtains in many places, for want of workmen who underſtand the method of the operation of the former. The method of Refining with ſaltpetre is as follows:

This operation is performed in a wind-furnace. They firſt reduce the ſilver, to be refined into grains, about the ſize of a ſmall pea; which is done by firſt melting it, and then throwing it into a tub of common water, and then heating it over again in a boiler.

This being done, they put it into a crucible; putting to every eight ounces of ſilver two of ſaltpetre.

Then they cover the crucible with an earthen lid, in the form of a dome, exactly luted; which lid muſt have a ſmall aperture in the middle.

The crucible being ſet into the furnace, and covered with charcoal, which is only to be lighted by degrees; at length they give it the full force of the fire, to put the metal into a perfect fuſion.

fuſion. This is repeated three times ſucceſſively, at an interval of a quarter of an hour.

After the third fire they uncover the furnace, and let the crucible cool; and at length break it, to get out the ſilver, which is found in a button or culot, the bottom of which is very fine ſilver; and the top mixed with the fæces of the ſaltpetre, and the alloy of the ſilver, and even ſome particles of fine ſilver.

Then they ſeparate the culot from the impurities, and melt it in a new crucible; and throw charcoal-duſt into the diſſolution, and work the whole briſkly together.

Then they cover the crucible up again, and charge the furnace with coal, and give it a ſecond fire.

Having done this, they blow off the aſhes and impurities with bellows, from off the top of the metal, till it appear as clear as a looking-glaſs; and then they throw in an ounce of borax broken to pieces.

Then, in the laſt place, they cover the crucible up again, and give it the laſt fire, and after this caſt it into ingots, which are found eleven penny-weights and ſixteen grains fine.

To recover the ſilver that may be left in the fæces and ſcoria, they pound them, and give them repeated lotions in freſh water.

As for the method of Refining ſilver with lead, ſee the article SILVER.

REFORMATION, is repreſented, in painting, &c. by an ancient matron in a mean habit, a pruning-hook in her right hand, and in her left a book open inſcribed,

——Pereunt diſcrimine nullo
Amiſſæ leges.———

i. e. The laws are always defended, and never periſh by any accident.—She is repreſented old, as moſt proper to reform and govern; the poor habit ſhews her exempt from luxury; the hook, the intrenching all abuſes, ill cuſtoms and tranſgreſſion.

Raphael da REGGIO *di Modena*, born in 1552, ſcholar of Fed. Zucchero, lived at Rome, excelled in hiſtory; died in the year 1680, aged twenty-eight years.

Gio Antonio REGILLO *da Pordenone*, born in the year 1484, ſtudied Giorgione, lived at Venice and Ferrara, excelled in hiſtory-painting; died in the year 1540, aged fifty-ſix years.

RELIEVO, } in painting, &c. is the degree of force or bold-
RELIEF, } neſs, wherewith the figures ſeem, at a due diſtance, to ſtand out from the ground of the painting, as if really imboſſed.

The Relievo depends much upon the depth of the ſhadow, and the ſtrength of the light; or on the height of the different colours, bordering on one another; particularly on the difference of the colour of the figure from that of the ground.

When the light is well chosen to make the nearest parts or figures advance, and well diffused on the masses; still insensibly diminishing, and terminating into a large spacious shadow, brought off insensibly; the Relievo is said to be bold, and the clair obscure well understood.

RELIEVO, } in sculpture, &c. is applied to a figure, which
RELIEF, } projects or stands out, prominent from the ground or plan, whereon it is formed; whether that figure be cut with the chissel, moulded, or cast.

There are three kinds of degrees of Relievo, viz. alto, basso, and demi-relievo.

Alto-relievo, haut Relief, or high Relievo, is when the figure is formed after nature, and projects as much as the life.

Basso Relievo, bas Relief, or low Relievo, is when the work is raised but little from the ground, as in medals, and the frontispieces of buildings; particularly the histories, festoons, foliages, and other ornaments of friezes.

Demi Relievo, is when one half of the figure rises from the plan, i. e. when the body of the figure seems cut in two; and one half of it is clapped upon the ground; when in a basso Relievo there are parts that stand clear out, detached from the rest, the work is called a demi-basso.

RELIGION, is represented, in painting, &c. as a woman cloathed in a silver veil, with a garland or mantle of white, fire in her left hand, in her right a book, and a cross and elephant by her.—Veiled, because she has been always secret; the cross is the victorious banner of true Religion; the book is the scripture; the elephant is an emblem of true Religion, he adoring the sun and stars.

RH *Rembrant van* RHEYN, born in the year 1606, a scholar of Lasman of Amsterdam, lived in Holland, excelled in history and portraits; died in the year 1668, aged sixty-two. He used this mark.

Guido RENI, born in 1575, scholar of Denis Calvert and the Carraches, lived at Bologna and Rome, excelled in history; died in the year 1642, aged sixty-seven years.

RENOWN, is represented, in painting, &c. as a man of a pleasant aspect, well proportioned limbs, cloathed with a cloth of gold, mixed with purple, adorned with a garland of red hyacinths, and a gold chain, leaning upon Hercules's club with one hand, and carries a lighted torch in the other.—His aspect imitates his virtuous mind, the robe shews him dignified, the hyacinth wisdom and prudence, the chain honour, the club the ideas of all virtues, the torch denotes splendor acquired by his illustrious exploits.

REPOSE, in painting, is a term used for certain masses of large

large ſyſtems of aſſemblages of light and ſhade, which, being well conducted, prevent the confuſion of objects and figures, by engaging and taking up the eye, ſo as it cannot attend to the other parts of the painting for ſome time; and thus leading it to conſider the ſeveral groups gradually, and as it were to proceed from ſtage to ſtage.

 *Gaſpar* REVERDIN, or *Ravenſtein*, his pieces are laſcivious; and two of them repreſent courtezans ſporting together; he uſed this mark.

REWARD, is repreſented, in painting, &c. by a man cloathed in white with a golden girdle, a palm with an oak-branch in his right hand, and a crown and garland in his left.

The oak and palm denote honour and profit, the principal parts of recompence; the garment and girdle truth, when recompence is accompanied with virtue; for good done to thoſe that deſerved it not, is not Reward.

RHETORIC, is repreſented, in painting, &c. by a fair lady richly cloathed, with a noble head-dreſs, very complaiſant, holds up her right hand open, a ſcepter in her left with a book; on the ſkirt of her petticoat are theſe words, Ornatus perſuaſio, of a ruddy complexion, with a chimæra at her feet.—Fair and complaiſant, becauſe there is none ſo ill bred that is not ſenſible of the charms of eloquence; her open hand ſhews Rhetoric diſcourſes in a more open way than logic; the ſcepter, her ſway over mens minds; the book, ſtudy requiſite; the motto denotes its buſineſs; the chimæra the three precepts of it, judicial, demonſtrative, and deliberative.

 or  or  *Joſeph* RIBERA, called *Spagnoletto*, uſed theſe three marks, at different times.

Gioſeppe RIBERA, known by the name of *Spagnoletto*, ſcholar of Michael Angelo da Caravaggio, lived at Naples, excelled in hiſtory and half figures; died in the year 1647, aged ſixty years.

Daniele RICCIARELLE *da Volterra*, born in 1509, ſcholar of Baldaſſar Peruzzi de Siena, lived at Rome and Florence, excelled in hiſtory and ſculpture; died in 1566, aged fifty-ſeven years.

John RILEY, was born in London, in the year 1646; he was an excellent Engliſh portrait-painter, and a diſciple of Mr. Zouſt, an extraordinary Dutch maſter, whoſe manner he retained, though perhaps, with him, he wanted the choiceſt notions of beauty; but, for painting a face, few have exceeded him, in any nation whatſoever. Had not the gout, an enemy to the ſedentary and ſtudious, carried him off, we might have oppoſed a Riley to a Venetian Bombelli, or to all that the French academy has produced in that manner of painting to this day. His fame

roſe upon the death of Sir Peter Lely; at which time, he was recommended to the favour of king Charles II. by Mr. Chiffinch, whoſe picture he drew. He was afterwards employed in drawing ſome of the king's children, and, at laſt, his majeſty ſat to him himſelf. He alſo drew king James II. and his queen, and king William and queen Mary, upon the revolution, when he was ſworn their majeſties painter. He was very diligent in the imitation of nature, and ſtudying the life rather than any particular manner, by which he attained a pleaſant and moſt agreeable ſtile of painting. His excellence was confined to a head, a great number of which do him juſtice, even in the beſt collection of our nation. He was modeſt and courteous in his behaviour, and of an engaging converſation; he died anno 1691, aged forty-five years, and lies buried in Biſhopſgate church.

RIVERS; in painting of them, you ought to conſider the properties and adjuncts of each; which uſually conſiſt in ſome notable action or accident, done or happened near them; ſome famous city, fruits, or reeds ſituated upon or near their banks; ſome fiſh only proper to their ſtreams; or recourſe of ſhipping from all parts of the world.

Therefore it will be proper to place the city upon their heads; their fruits in a cornucopia; reeds, flowers, and branches of trees in their garlands and the like.

ROCAILLE, a ſpecies of glaſs in certain green and yellow grains, whereof beads are made; great quantities of which are exported to Africa and other foreign parts, and worn by the negroes, &c. as necklaces, bracelets, &c.

To make the yellow grains, take a pound of fine white ſand, and three pounds of minium; mix and pound them together very well in a mortar, and put the whole into a ſtrong crucible, covered and luted; dry the lute, and ſet it afterwards into a glaſs-houſe or wind-furnace, where the fire is violent, to reduce this matter into glaſs; after which, make it up either into grains, or any other ſhape you pleaſe.

The method of making the green is different from that of the yellow; for this put three pounds of fine white ſand to every pound of minium, and it will be very compact.—This will alter its colour, and become a pale red in melting.

ROCHETTA, a name commonly given to all aſhes or polverine, that is uſed in making of glaſs. See POLVERINE.

Peter ROESTRATEN, was born at Haerlem, and a diſciple of Hans Hals, whoſe manner he at firſt followed; but at laſt falling into ſtill life, and having performed an extraordinary piece, that Sir Peter Lely ſhewed to king Charles, and which his majeſty approved, he was encouraged to purſue that way, which he continued to his death. He was an excellent maſter in that kind

of painting, viz. on gold and silver plate, gems, shells, musical instruments, &c. to all which he gave an unusual lustre in colouring, and for which his pictures bear a good price. He died about 47 years ago, and lies buried in Covent-garden church.

Gio Francesco ROMANELLI, born in the year 1612, scholar of Peter de Cortona, lived at Rome, excelled in history, landscapes, and battles; died in the year 1673, aged fifty-nine years.

Giuli ROMANO, scholar of Raphael, lived at Rome and Mantua, excelled in history and architecture; died in 1546, aged fifty-four years.

Salvator ROSA, born in the year 1614, scholar of Daniele Falconi, lived at Rome, excelled in histories, landscapes, and battles; died in the year 1673, aged fifty-nine years. He used this mark 

Susannah Penelope ROSE, wife to Mr. Rose, a jeweller, and daughter to Mr. Richard Gibson the dwarf, by whom she was instructed in water colours, and wherein she performed to admiration. She not only copied finely, but also drew exceeding well after the life in miniature. She died about fifty years ago, at forty-eight years of age, and lies buried in Covent-garden church.

ROSES, to paint in miniature, having chalked and drawn the red rose in carmine, let your first lay be a very pale mixture of carmine and white; then lay in the shades with the same colour, but with less white; and at last use carmine alone, but it must be very thin at first, adding however to the body of it more and more as the piece advances, and that the shades grow darker and darker; and this is to be done with broad bold strokes. To conclude, you finish the same colour with fine strokes, which must be turned like those of the graving, if you copy after a print; or like the turn of the leaves of the Rose, if you copy after a painting or nature; scumbling the whole, and touching up the strongest lights and the edges of the brightest leaves with white and a little carmine. You must always make the heart of the Rose and the shady side darker than the rest, and use a little indigo in shading the first leaves, especially when your Roses are blown, to make them appear a little fading; the seed is done with gamboge, mixed with a little bladder green for shading.

Your streaked Roses must be paler than the other, that the streaks may be more conspicuous; which must be done with carmine, somewhat deeper in the shades, and very bright in the lights, hatching continually with fine strokes.

For white Roses lay on white, and proceed and finish as in the example of red Roses, but with black and white and a little bistre, and make the seed somewhat yellower than before.

For yellow Roſes lay on maſticote, and ſhade with gamboge, gall-ſtone, and biſtre, heightening the lights with maſticote and white.

The ſtalks, the leaves, and the buds of all ſorts of Roſes, muſt be laid in with verditer, mixed with a little maſticote and gamboge, and to ſhade them uſe iris-green, with leſs of the other colours when the ſhades are deep; the wrong ſide of the leaves muſt be bluer than the other, therefore you muſt lay on ſea-green and mix it with iris-green to ſhade with, making the veins or ribs of that ſide lighter than the ground, and thoſe of the right ſide deeper.

The prickles upon the ſtalks, and the buds of the Roſes, are made with ſlight touches of carmine in all directions, and thoſe on the ſtem of the tree; and larger branches are ſtruck in with verditer and carmine, and ſhaded with carmine and biſtre, making alſo the bottom of the ſtems and ſtalks more reddiſh than the tops; that is, you muſt mix green with carmine and biſtre to ſhade with.

The Paſs-ROSE; this is to be done the ſame way as the French marigold, and the green of the leaves the ſame; but the veins muſt be of a deeper green.

ROSIN, is a reſinous matter, prepared from the juice of the pine-tree, ordinarily uſed for making wax, &c.

We have, in the Philoſophical Tranſactions, the method of preparing this drug in the ſouthern parts of France.

Firſt, they pare off the bark of the pine, to make the ſap run down into a hole made at bottom to receive it; as the juice runs, it leaves a cream or cruſt a-top; which, being tempered with water, is ſold fraudulently for white bees-wax.

When they have got a quantity of the juice, they ſtrain it through a baſket, and what runs through it is the common turpentine.

What ſtays behind they mix with water, and, diſtilling it in an alembic, the matter that riſes is the oil of turpentine, and the cake that remains is the common Roſin.

ROSSO of Florence, born in the year 1496, ſtudied with Michael Angelo, lived at Florence, Rome, and France, excelled in hiſtory and architecture; died in the year 1541, aged forty-five years.

MR *Martin* ROTA *Sabinienſe* ſometimes marked with theſe words, Sabenzanus fecit.

Hans ROTTENHAMMER, born in the year 1564, ſtudied under Donawer and Tintoret, lived at Venice and Bavaria, excelled in hiſtory; died 1604, aged forty years.

Jamas ROUSSEAU, was a French landſcape-painter, born at Paris; he had a great part of his inſtruction from Herman van Swanevelt,

Swanevelt, who married a relation of his. He afterwards travelled to Italy, where he ſtudied ſeveral years, and perfected himſelf in architecture, perſpective, and landſcape, by following the moſt eminent painters in that kind, and ſtudying the antiquities. Returning to Paris, he was wholly employed ſome years by the king at Marly, and elſewhere; but, leaving that ſervice upon the perſecution, he retired to Swiſſerland, from whence he was invited to return by M. Louvois, chief miniſter of ſtate, upon all the promiſes of indemnity imaginable, to finiſh what he had begun; which refuſing to do, he notwithſtanding made a preſent to the king of his draughts and deſigns for that purpoſe, and moreover nominated a perſon to perform the work. After a little ſtay in Swiſſerland, he came to Holland, from whence he was invited over to England by the duke of Montague, who employed him at his ſtately houſe at Bloomsbury. Upon his coming over hither, he farther improved himſelf in the ſtudy of landſcape, and added his beautiful groups of trees to the many draughts he made after nature in ſeveral parts of this kingdom; his views are commonly ſylvan and ſolid, his water of all kinds well underſtood and tranſparent, his fore grounds great, and generally well broke; and in a word, the whole very agreeable and harmonious; his ſkill in architecture made him often introduce buildings into his landſcapes, as he did alſo ſmall figures, after the manner of Pouſin. He died in London about ſixty years ago. He executed with his own hand ſeveral prints in aqua-fortis after his own landſcape.

R. S. ſignifies Ravignanus ſculpſit.

R. S. M. A. } See RAIMONDI of Bologna.
R. S. M. F. }

R. S. M. R. Mark of Ravenna put this mark to Raphael Sancio Urbino's pieces.

R. V. A. Sig. Gaudenſis ſculpſit, the mark of ſeveral pieces invented by Peter de Cortona.

Sir Peter Paul RUBENS, born in 1577, ſcholar of Adam van Noort and Otho Vænius, and ſtudied in Italy; lived at Antwerp, Italy, and England; excelled in hiſtory and portraits; died in 1640, aged ſixty-three.

RUBY, a ſparkling gem of the firſt rank among precious ſtones. There are but two places in the Eaſt, where Rubies are found, the kingdom of Pegu, and the iſle of Ceylon.

The mine of Pegu, where it is found in greateſt plenty, is in the mountain Capelan, twelve days journey from Siren, the reſidence of that prince; the fineſt Rubies brought from hence do not exceed three or four carats, the king reſerving all the larger to himſelf.

In the iſland Ceylon, the Rubies are found in a river, which deſcends

deſcends from the mountains towards the middle of the iſland: Some few are alſo found in the ground.

The Rubies of Ceylon are ordinarily brighter, and more beautiful than thoſe of Pegu; but they are rare, the king of Ceylon prohibiting his people to gather them, or traffic with them.

There are Rubies alſo found in Europe, particularly in Bohemia and Hungary, eſpecially in the former, where there is a mine of flints of divers ſizes, which upon breaking are ſometimes found to contain Rubies, as fine and hard as any of the Eaſt.

The value of Rubies, from one carat or four grains, is reckoned in Dictionaire de Commerce as follows:

	l.	s.	d.
A Ruby of one carat is worth	1	15	0
—— two carats ——	9	0	0
—— three carats ——	22	10	0
—— four carats ——	33	15	0
—— five carats ——	45	0	0
—— ſix carats ——	67	10	0
—— ſeven carats ——	84	0	0
—— eight carats ——	106	0	0
—— nine carats ——	150	0	0
—— ten carats ——	216	0	0

Rubies are uſually diſtinguiſhed into two kinds, the balaſſe and ſpinelle; but there are ſome authors who diſtinguiſh them into four kinds, viz. the Ruby, rubicelle, balaſſe, and ſpinelle.

It is their different degrees of colour that make their different value and beauty.

The balaſſe Ruby is of a vermeil roſe-colour; the ſpinelle of a flame colour.

It is ſaid that the inhabitants of Pegu have the art of heightening the redneſs and brilliant of Rubies, by laying them in the fire, and giving them a certain degree of heat.

The Ruby is formed in a ſtony ſubſtance, or marcaſite of a roſe-colour, called mother of Ruby; it has not all its colour and luſtre at once, but they come to it by degrees. At the firſt it grows whitiſh, and, as it approaches to maturity, becomes red. Hence it comes to paſs, that we have white Rubies; others half white, half red; others blue and red, called ſapphire Rubies.

When a Ruby exceeds twenty carats, it may be called a carbuncle.

There are ſeveral manners of counterfeiting Rubies; and ſome have carried the imitation ſo far as to deceive the moſt able lapidaries.

To make oriental RUBIES. The Ruby, which is a precious ſtone, diaphanous and very radiant, ought to have the colour of blood

blood and ſcarlet, and clear lacca, and ſhew about the edges of its fire a little azure colour.

To imitate this fine colour, take four ounces of the matter, prepared with natural cryſtal and ſaturnus glorificatus; two ounces of crocus martis prepared, one ounce of verdigreaſe, two ounces of mercury calcined ad rubedinem, and two ounces of ſal gem; reduce all to fine powder, mix them together, put them into a crucible, cover it, lute it, and ſet it in a glaſs-houſe furnace for three days; then take it out, and ſet it into the furnace, where glaſſes are ſet to anneal, there to colour by degrees for twelve hours; then break the crucible, and you will find the matter tinged of a fine Ruby colour, which you may divide, cut, and poliſh.

To make the balaſſe RUBY. This ſpecies of Ruby is of a very bright colour, reſembling a vermilion, roſe, and crimſon, being mixed of a natural red and of a ſky colour. To imitate it,

Take ſix ounces of ſaturnus glorificatus mixed with natural cryſtal, half an ounce of crocus martis, half an ounce of mercury calcined ad rubedinem, two drachms of ſal gem; the whole reduced to an impalpable powder, and mixed well together. Then put it in a crucible, covered cloſe and luted, and ſo into a glaſs-houſe furnace for three days, proceeding as in the preceding article, and you will have a very fine matter, the colour of a balaſſe Ruby.

RF *Guido* RUGGERI fecit, is the mark of ſeveral pieces, painted at Fontainbleau by abbot Primaticcio, and engraved by the above-mentioned, who accompanied him into France.

S.

A *Ndrea* SACCHI, born in 1601, ſcholar of Gioſeppini Albani, lived at Rome, excelled in hiſtory and architecture; died in the year 1661, aged 60 years.

V *Juſtus* SADELER uſed this mark: At other times he added Sadeler I S exc.

SADNESS. See SORROW.

I S or I S SAENREDAN, a Dutchman, uſed this mark; he ſometimes uſed the letter I, with an S intwined about it, his Chriſtian name being Hans or John; he died in the year 1607.

A T S *Anthony* SALAMANCA, or Ant. Sal. exc. 1543.

Andrea

S *Andrea* SALMINCIO, of Bologna, an engraver and ſcholar of Valeſio's, uſed this mark.

SALTPETRE, is a kind of ſalt, both natural and factitious, of very great uſe in dying, the making of glaſs, and of aqua-fortis, for the diſſolution of metals.

Of natural Saltpetre there are two kinds; the firſt formed by a natural cryſtalliſation of ſaline ſulphureous juices, diſtilling in caverns, or along old walls, called Saltpetre of the rocks.

The ſecond kind of natural Saltpetre is produced from the water of a dead lake in the territory of Terrane in Egypt, called the Nitrian waters, exalted and concocted by the heat of the ſun, much after the manner of our bay-ſalt.

Artificial or factitious Saltpetre is alſo principally of two kinds:

The firſt is called by ſome mineral Saltpetre, and is found in ſeveral places of the kingdom of Peru, and about Agra in villages, which were anciently populous, but now deſerted; and alſo in ſome places along the banks of the Wolga.

The ſecond is that prepared from nitrous matters, collected in old buildings, dove-houſes, the middle of ancient ruins, &c. by means of lixiviums or leys made of wood-aſhes, and ſometimes of thoſe of herbs.

Of this there are great quantities made in France, particularly in the arſenal at Paris, where there is a corporation of Saltpetre makers appointed for the purpoſe.

The Saltpetre, gained thus, they refine by boiling it three or four times, and paſſing it ſucceſſively through ſeveral leys.

Saltpetre ſhould be well cleanſed, white, dry, and as free of ſalt as poſſible: The beſt refined Saltpetre is that whoſe cryſtals are the longeſt, largeſt, and fineſt.

Saltpetre has a property of rarifying or expanding itſelf to a prodigious degree. It is hence that gunpowder derives its force, of which Saltpetre is the principal ingredient. It is computed that, when inflamed, it takes up above 10,000 times the ſpace that it poſſeſſed before.

Franceſco SALVIATI, *or Franceſco de Roſſe*, born in the year 1510, ſcholar of Andrea del Sarto and Baccio Bandinelli, lived at Rome and Florence, excelled in hiſtory and portraits; died in the year 1563, aged 53 years.

Raphael SANCIO *da Urbino*, prince of the modern painters, born in the year 1483, ſcholar of his father Giovanni and Pietro Perugino; but, for colouring, of Fra. Bartolomeo.

To dye SAND *colour*. Take water a ſufficient quantity, nut galls in powder one pound, madder ſix ounces, fuſtic four ounces; let them boil and enter your cloth, twenty yards of broad cloth

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et it boil two hours, and handle it, and ſo cool it; add copperas four ounces; enter your cloth at a boiling-heat, let it boil a quarter of an hour, and handle it, and ſo cool it again. If you will have it ſadder, put in more copperas; enter your cloth again, and boil another quarter of an hour, cool and waſh.

SANDARACH, is a white gum, oozing out of the trunk and thick branches of the great juniper-tree, by inciſions, made in the heats of the ſummer.

The beſt is in fine white tears, free of duſt; ſome will have it, that the Sandarach of the juniper is not the right, but only that of the oxycedron.

SANDEVER, is the droſs of glaſs, or the ſcum that ariſes from the aſhes of the herb kali, uſed in the making of glaſs.

SANDIX, a kind of minium, or rather red maſticote, made of ceruſs calcined and rubefied, called alſo a factitious ſandarach. It is but little uſed in painting, the real minium or vermilion, to which it is ſubſtituted, making a much better, brighter, and more durable colour.

SANGUIS *draconis*. See DRAGONS *blood*.

SAPPHIRE, a precious ſtone, very much eſteemed for its beauty, of a very clear and beautiful ſky colour. There are ſome whitiſh, like diamonds; others very blue, and ſome a violet colour; the ſtone is ſoft, but eaſy to harden.

To make a paſte to imitate the SAPPHIRE. Take two ounces of natural cryſtal prepared, four ounces and an half of minium, twenty-ſix grains of blue ſmalt: The whole being well pulveriſed, put them in a crucible, and cover and lute it well; then put them in the furnace to bake, and you will have a fine blue violet colour.

Another oriental SAPPHIRE. The paſte for this Sapphire will be nearer oriental than the former; take two ounces of natural cryſtal prepared, ſix ounces of minium; to which add two ſcruples of zaffer prepared, and ſix grains of manganeſe alſo prepared; the whole reduced to a fine powder: Mix them well together, and put them in a crucible, cover and lute it well; then put them in the furnace to bake, and you will have an oriental Sapphire, of a very fine violet colour.

To make a deeper oriental SAPPHIRE. Take two ounces of cryſtal prepared, five ounces of minium, forty-two grains of prepared zaffer, and eight grains of manganeſe of Piedmont alſo prepared; the whole reduced to an impalpable powder, and mixed well together. Proceed as before, and you will have a Sapphire deeper than the preceding, ſomewhat tending to a violet colour, which you may work, poliſh, and ſet.

Another very fine blue SAPPHIRE. Take one ounce of cryſtal in powder, add to it a drachm of the ſalt of vitriol, three grains

of verdigreaſe, one grain of azure; an ounce, one drachm, and four grains of fine ſalt of tartar; the whole in fine powder: Put it into a crucible, covered and luted, to be baked and purified as before, and you will have a very fine blue Sapphire, &c.

Another fine SAPPHIRE. Take two ounces of powder of cryſtal, two ounces of fine ſalt of tartar, five drachms twenty-four grains of verdigreaſe, and thirty-two grains of azure; the whole reduced to impalpable powder, which you muſt ſet to bake and purify in a covered crucible in a glaſs-houſe furnace, as we have ſaid before, and you will have a very fine Sapphire.

The way to make a violet SAPPHIRE. Take one ounce of powder of cryſtal, one drachm of ſalt of vitriol, and nine drachms of fine ſalt of tartar, the whole in fine powder; then proceed as before, and you will have a Sapphire of a very fine violet colour.

SARDOIN, or *Sardonian ſtone*, ſo called of Sardinia, is a precious ſtone of a blood colour, half tranſparent; the ſame with that which is otherwiſe called a cornelian.

The moſt beautiful Sardoins are thoſe brought from about Babylon; thoſe of Sardinia are of the ſecond claſs.

There are other Sardoins, and not contemptible ones, found near St. Mauro in Albania; and other very ſmall ones about the Rhine, in Bohemia, Sileſia, &c.

To give them the greater luſtre, it is uſual, in ſetting them to lay ſilver leaf underneath. This ſtone is in moſt uſe for ſeals becauſe it graves eaſily, and takes a fine poliſh.

SARDONYX, a precious ſtone that partakes partly of the onyx. It is reddiſh, bordering on white, like the nail of the hand; in ſome, the red inclines to yellow. It is brought from the Eaſt-Indies, Arabia, and Bohemia.

Andrea del SARTO, born in the year 1478, ſcholar of Pietro di Coſimo, lived at Florence, excelled in hiſtory-painting, died in the year 1520, aged 42 years.

SASHES *for windows, as clear as glaſs*. Take the fineſt vellum, or ſlink ſkin, without knots or flaws, rub it with fine powder of pumice-ſtone well ſifted, and, having ſtretched the ſkin on a frame a little wet, let it dry in the ſhade, that it may harden the better; then take two parts of nut oil, and one of linſeed, and a little glaſs finely powdered, and two parts of fair water, and boil them all together in a glaſs on a tile, pretty near the fire, until the water evaporate; then, with this, bruſh over the Saſhes of vellums, and dry them moderately in the ſun, and they will be very clear and tranſparent, giving a more true and certain light to do buſineſs by than glaſs.

The manner of painting cloth, or ſarnet SASH *windows*. Let the cloth or ſarſnet be firſt ſtrained tight to the frames, and the

ma-

made faſt; and, when they be thoroughly dry, varniſh them over with the following tranſparent varniſh:

Take a pound of good clear nut oil, put it into an earthen pipkin, and add to it half a pound of ſilver litharge in fine powder; ſet it on a ſmall fire, but not to boil; and let it ſtand hot, at leaſt twelve hours, ſtirring it often in that time. Pour it off from the litharge by inclination; and take a pound and an half of the cleareſt white roſin, beat it to powder, and mix it with the oil on a ſlow fire, always ſtirring it till the roſin be diſſolved; then take it off, and put into it a pound of good clear Venice turpentine, and ſtir them all well together; and, with a good bruſh, let your Saſhes be thoroughly varniſhed over with this mixture, ſo that they may appear all over clear and tranſparent.

When this varniſh is dry, you may paint upon them what fancy you pleaſe with oil colours, but landſcape is moſt common and natural; for which purpoſe, the colours you mix ought to be ſuch as are of a fine body, and apt to become tranſparent.

For theſe purpoſes, lake makes an excellent tranſparent ruby colour, and diſtilled verdigreaſe makes an incomparable tranſparent green; orpiment makes an excellent tranſparent gold colour; umber and yellow oker will become indifferent tranſparent, if thinly mixed: But, for the reſt, there are none that will lie clear in this work, but only according to the very thinneſs of their mixture with the oil.

The aforeſaid varniſh, as it is clear of itſelf, is an excellent varniſh for paper windows, being much more tranſparent than any other compoſition, and more laſting; for the roſin and turpentine being made tough, when dry, by means of the oil mixed with it, more powerfully reſiſt the injuries of the weather than oil alone.

If any are troubled with weak eyes, and cannot endure a bright light, this varniſh mixed with diſtilled verdigreaſe, and paper windows, or farſnet ones done over with it, will make an incomparable green light, very comfortable to the ſight, and of great benefit to ſuch as love not too much brightneſs: An obſervation of good uſe to all ſtudents, whoſe ſight is often much impaired and weakened by poring too much upon their books; the whiteneſs of the paper being obſerved to be often a great enemy to the ſight, the inconveniencies of which ſuch a green light will infallibly prevent.

Colours for painting SATTINS. For a black Sattin uſe lamp black, ground with oil, and tempered with white lead; and, where you would have it ſhine moſt, mix lake with the white lead.

For white Sattin, uſe white lead, ground alone, and ivory black; which temper light or dark.

For

For red Sattin, uſe Spaniſh brown, ground alone; temper it up with vermilion; and, where it ſhould be brighteſt, mix white lead with the vermilion.

For green Sattin, uſe verdigreaſe, ground alone; mix it up with white lead; and, where you would have it brighteſt, add a little pink; and, where deepeſt, a little more verdigreaſe.

For a yellow Sattin, uſe maſticote, yellow oker, and umber, each ground by themſelves; and, where it ſhould be darkeſt, uſe umber; where brighteſt, maſticote alone; and, where a light ſhadow, oker.

For an orange colour Sattin, uſe red lead and lake; where ſadeſt, uſe lake; and, where lighteſt, red lead.

For blue Sattin, mix ſmalt and white lead; heighten for the ſaddeſt with ſmalt, and lighten with white lead.

For purple Sattin, uſe ſmalt alone; and, where it ſhould be brighteſt, white lead.

For hair colour Sattin, mix umber and white lead; and, where is the greateſt ſhadow, uſe ſea-coal black mixed with umber; and, where brighteſt, more white lead.

SATURN, was repreſented, by the Romans, in the form of an old man, holding a ſcythe or hook in his hand; which ſome take to repreſent Time, as is alſo intimated by his name Χρόνος, Chronos.

He was alſo repreſented as a very aged man, as one who began with the beginning of the world, holding in his hand a child, which he ſeems greedily devouring.

By this is ſignified the revenge he took for his being expelled heaven by his own children, according to the mythology of the poets. Thoſe who eſcaped his fury were only four, Jupiter, Juno, Pluto, and Neptune: By which are ſhadowed forth the four elements, fire, air, earth, and water; which are not periſhing by the all-cutting ſickle of devouring Time.

He has alſo been depicted as an old man, holding in his right hand a ſerpent, with the end of its tail in its mouth; turning round with a very ſlow pace: He had alſo his temples adorned with a green wreath, and the hair of his head and beard milk-white.

The wreath on his temples ſignifies the ſpring of the year; his milk-white or hoary head and beard, the approach of rigid winter; and the ſlowneſs of the ſerpent's motion, the ſlow revolution of the planet Saturn.

He is alſo deſcribed, by Macrobius, with the heads of a lion, a dog, and a wolf.

By the lion's head is ſignified the time preſent; which is always the ſtrongeſt, for that which is, muſt needs be more powerful than that which is not: By the dog's head, the time to come

come; which always flatters and fawns upon us, and by whofe alluring delights we are drawn on to vain and uncertain hopes: And, by the wolf's head, the time paft; which greedily devours whatfoever it finds, leaving no memory thereof behind.

The fame author tells us, that, among the reft of his defcriptions, he is repreſented with his feet tied together, with threads of woollen.

By which is ſignified, that God does nothing in haſte, nor chaſtiſes raſhly the iniquities of mankind; but proceeds ſlowly and unwillingly, to give them time and leiſure to amend.

Euſebius tells us, that Aſtarte, the daughter of Cœlum, wife and ſiſter of Saturn, placed alſo upon his head two wings; intimating, by the one, the excellency and perfection of the mind; and, by the other, the force of ſenſe and underſtanding.

The Platoniſts underſtand, by Saturn, the mind, and its inward contemplation of celeſtial things; and, therefore, they called the time, in which he reigned, the golden age, it being replete with quietneſs, concord, and true content.

SATURNUS *glorificatus*, a very valuable preparation for paſtes for gems, made in the following manner:

Take of litharge, or, rather, of good ceruſe of Venice, what quantity you pleaſe; grind it to a ſubtile powder, put it in a great glaſs cucurbit, pouring on it good diſtilled vinegar, till it riſe four inches above the top of the matter.

Then put this veſſel on a ſoft aſh fire, and, when the vinegar is well coloured and impregnated with ſalt, decant it off into another veſſel; continue to put new vinegar on your matter, which ſtir well with a ſtick, to facilitate the ſolution of the ſalt; repeat this till your vinegar ſhall have extracted all the ſalt. Then take all your coloured vinegar, rectify it four times on tartar calcined to whiteneſs, filtre it carefully, and put it in a glaſs cucurbit on ſand or an aſh fire, to evaporate it gently till it be juſt ſkinned over. Then put the veſſel into a cold place, having taken care to cover it, for fear of any foulneſs tumbling into it; and in a little time you will find in it little ſtones, pure cryſtalline and fuſible, which you muſt take out of your veſſel; then put your veſſel on the ſame fire to evaporate the remaining vinegar, till it be juſt ſkinned over; then ſet it in a cool place to cryſtalliſe as before.

When you have taken out all the cryſtals, dry them well, and reduce them to a ſubtile powder; and keep them in a veſſel well ſtopped. Thus you have Saturnus glorificatus.

S. B. ſignifies Stephen della Bella of Florence.

S. B. D. Pictor, is ſet under an annunciation, deſigned by Peter Candido.

S. C. ſtands for Simon Cantarino, called of Peſaro, painter and engraver.

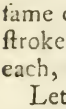
The SCABIOUS, to paint. There are two ſorts of this plant, red and purple.

The leaves of the red are to be painted with Indian lake and a little white, and coloured and finiſhed with lake only, in the middle, where there is a large pod or bud, which contains the ſeed; but with an addition of a little ultramarine or indigo, to make it a little darker.

Then make little longiſh ſpots of white for the upper part, at a pretty good diſtance from each other; but be ſure to make them ſtronger in the lights, and weaker in the ſhades.

For the purple, cover them with a very pale purple; as well on the leaves as on the pod in the middle, ſhading both with the ſame colour of a deeper teint; and, inſtead of uſing ſmall white ſtrokes for the ſeed, make them purple, and make a round about each, and that all over the pod.

Let the green be verditer and maſticote, ſhaded with iris green.



Raphael SCAMINOSSI, painter and engraver, uſed this mark.

SCANDAL, is repreſented, in painting, &c. by an old man with an open mouth, and grey beard, and his hair finely curled; a pack of cards in his right hand, and a lute in the left; a hautboy and muſic book at his feet.—Old age denotes the more heinous offence; open-mouthed, that he occaſions ſcandal, not only in deeds, but in words; the cards expoſed to every one's view, is a manifeſt ſcandal, in an old man eſpecially, who ſhould not give ill examples to youth.

SCARLET, may be repreſented on a plane with minium, a little mixed with vermilion; but, if you have occaſion to paint a flower of a ſcarlet colour on a print, let your lights, as well as ſhades, be covered thin with minium, and the ſhaded parts glazed with carmine, which will produce an admirable Scarlet; ſuch as is ſeen in the flower Scarlet martagon.

To dye SCARLET, *and the Bow dye.*

1. *To dye a* SCARLET *colour in grain.* Take ſtale clear wheat bran liquor, a ſufficient quantity; alum, three pounds; enter twenty yards of broad cloth, and boil it three hours, cool and waſh it; take fair water, a ſufficient quantity; hedder or ſtrawel, a fit quantity; let them boil well, cool them with a little water, enter your cloth and make a bright yellow, cool and waſh it again; take freſh wheat bran liquor, a ſufficient quantity; madder, four pounds; enter your cloth at a good heat, handle it to a boiling, cool and waſh it well; take more freſh bran liquor, a ſufficient quantity; cochineal in fine powder, five ounces; tar-

tar, three ounces; enter your cloth, and boil an hour or more, keeping it under the liquor, then cool and wash it.

2. *To perform a Bow dye.* Take double aqua-fortis, ten ounces, some say sixteen ounces; filings of pewter, twenty ounces; filings of silver or leaf silver, two ounces; put the pewter into the aqua-fortis to dissolve, and after that the silver, dissolving them over a gentle heat; then take cochineal in fine powder, cream of tartar in fine powder, of each five ounces; mix them with the former things, and add to them white starch, forty spoonfuls, dissolving and mixing. Now, take the liquor you intend to dye with, and put in a proportionable quantity of the former mixture, but in a brass vessel lined with pewter or tin; boil it a quarter of an hour and it is done.

To dye cloth, stuff, &c. SCARLET. For every twenty pounds weight of stuff take one pound and an half of madder, three quarters of a pound of alum, an ounce and an half of white-wine tartar, one ounce and an half of arsenic, and an ounce of ceruse; boil the cloth in this mixture for an hour and a quarter; then throw away the water, and put fresh water into the kettle, adding a pint of wheaten bran; then rinse the stuff in river water, and pass it through the branny water; then take it out and make a liquor of a pound and an half of verdigrease, three quarters of an ounce of white wood, called immic; and rinse the stuff in it several times, having first stirred the immic shavings about. Then put into the yellow liquor two pounds and an half of madder, one ounce of storax; let them lie one whole night to dissolve, and after that keep stirring the stuff well about for the space of an hour, keeping constantly a good fire under the copper; all which being done, you will have a very good Scarlet.

Another. For every two pounds of stuff to be dyed allow two ounces of tartar, and one ounce of sal armoniac; pulverise them, and, when the water begins to boil, put them in, and put two ounces of white starch, and half an ounce of gamboge, into the water; and add also an ounce of cochineal; make them boil, and then put in an ounce and an half of aqua-fortis. When you have done this, put in the stuff; boil them all together, take it out cool and rinse it.

To dye a SCARLET *or nacaret, i. e. a lively red.* For twenty-seven pounds of woollen ware, take two pounds of tartar, six ounces of sal gemmæ, four ounces of sal armoniac, two pounds of aqua-fortis tempered with tin, three ounces of cochineal; and having first cleansed the ware very well, when you put these drugs into the kettle, put in the stuff, and let them boil together for half an hour.

To finish it. Boil the ware gently with a pound and a quarter of cochineal, one once of sal gemmæ, one ounce of tartar,

and half a pound of tempered aqua-fortis; and then rinſe it out.

You may, if you pleaſe, uſe more of the ſal armoniac, and leſs of the ſal gemmæ: And, alſo, if you take but one pound of cochineal, and ſtir the goods well, cool and rinſe them, the dye will be very near as good as the other way.

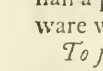
Note, That all ſorts of wool and woollen wares muſt be well wetted before they are put into the ſuds; and this caution is the more eſpecially neceſſary in the Scarlet dye.

To dye a deep SCARLET *fleſh colour.* For thirteen pounds of woollen ware take two pounds of aqua-fortis, tempered with half a pound of tin; two pounds and an half of white-wine tartar, half a pound of ſal gemmæ, four ounces of ſal armoniac; boil the ware with all theſe for half an hour, then rinſe it out; and,

To finiſh it.—Add one pound and a quarter of cochineal, one ounce of ſal armoniac; boil the goods with theſe for a quarter of an hour, and they will be of a very good colour.

A liquor to ſcour SCARLET.—Boil a pound of wheaten bran in as much liquor as is ſufficient to work ten or twelve pounds of ware; and afterwards add to it three ounces of alum, three ounces of Florence orris root powdered; boil all together, pour them into a clean vat or cooler, and let them ſettle till the liquor is clear; afterwards heat the clear liquor in a kettle, and ſcour the ſcarlet with it, and it will have a very good effect.

S. C. F. ſtands for Stephen Carteron fecit.



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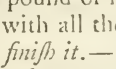
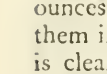


Hans SCHAUFLIG, that is, John Schauflig of Nordlingen in Germany. This mark is found in a folio book, in which the paſſion, reſurrection, and aſcenſion of our Lord are engraven, with notes, by Ulderic Pinder, printed at Norimberg, in the year 1507. He engraved in the manner of Albert Durer.

Andrea SCHIAVONE, born in the year 1522, imitated Parmegiano, Georgione, and Titian, lived at Venice, excelled in hiſtory; died in the year 1682, at ſixty years of age.

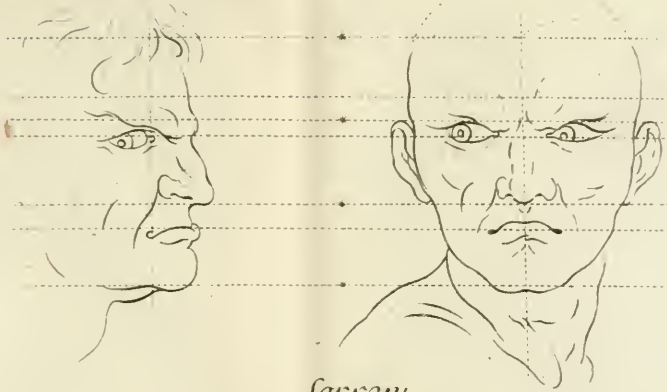


John SCHORELS uſed this mark under the twelve different labours of Hercules.

SCORN; the motions of Scorn are lively and ſtrong, and are repreſented by a wrinkled forehead; the eye-brow knit or frowning, the ſide of it next the noſe is drawn or ſinks down, and the other ſide is very much raiſed; the eye is very open, and the eye-ball in the middle; the noſtrils are drawn upwards towards the eyes, and make wrinkles in the cheeks; the mouth ſhuts its ſides ſinking down, and the under lip is puſhed out beyond the upper one. See plate XVI.

In Scorn and averſion, the body may be drawn retiring backwards; the hands, as if they were puſhing off the object which

Scorn



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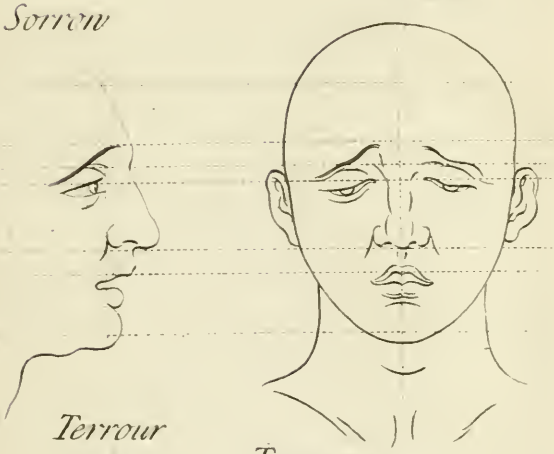
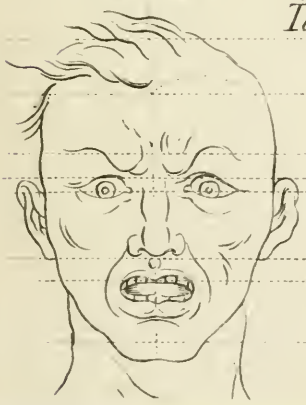


Terrour



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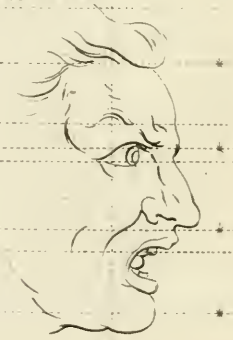

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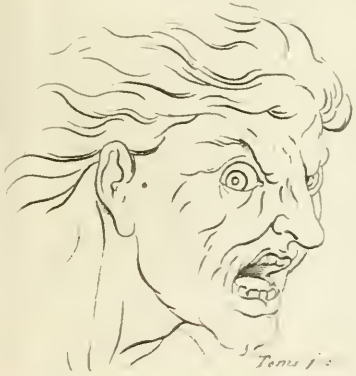


Tom. I. c.

cauſes the averſion, or they may be drawn back, as alſo the feet and legs.

SCOURGE of God, is repreſented, in painting, &c. by a man in a red garment, holding a ſcourge in one hand, and a thunderbolt in the other; the air being troubled, the earth full of locuſts.—His garment denotes wrath and vengeance; the locuſts, univerſal chaſtiſement, as in Egypt; the thunderbolt, ſignifies the fall of ſome who aſcend to honour by indirect and unjuſt ways; for it is crooked.

SCRATCH-WORK, a method of painting in freſco, by preparing a black ground, on which is laid a white plaiſter, which being taken off with an iron bodkin, the black appears through the holes, and ſerves for ſhadows.

This kind of work is laſting; but, being very rough, is unpleaſant to the ſight.

SCRUPULOUSNESS, is repreſented, in painting, &c. by a lean old man very timorous and ſhame-faced, looks up to heaven, holds a ſieve in both hands near a fiery furnace.—Lean, becauſe continually tormented with remorſe; ſhame-faced, becauſe guilty and timorous, as always fearing God's judgments, conſcience ſtill flying in his face; the ſieve denotes ſeparating good actions from bad, as the furnace tries metals.

SCULPTURE, is an art, by which, in taking away, or adding to matter, all ſorts of figures are formed; either in clay, wax, wood, ſtone, or metal.

This ſort of work is done either by hollowing, as in metals, agates, and other ſtones; or working in relievo, as in ſtatues and baſs-reliefs.

The beginnings of Sculpture were with clay, not only to make ſtatues at firſt; but, when the ſculptor undertook any thing conſiderable, to make models, which was, and is ſtill always done, in clay or wax.

How to make figures of clay or wax.—There is no need of many tools in this ſort of work; the clay is placed on an eaſel, and the ſculptor begins and finiſhes the work with his hands.

Thoſe who are uſed to it, never make uſe of any thing but their fingers, except three or four pieces of wood, which are roundiſh at one end, at the other flat, with a ſort of claws and teeth, called, by the French, ebauchoir, i. e. a ſort of hatchet; they are about ſeven or eight inches in length; thoſe with claws are to ſmooth the ſtuff; the others which have teeth are to ſcratch it, the workmen not affecting to let it appear ſleek.

They are made of wax thus: Take a pound of wax, half a pound of oker or ſcammony, ſome add turpentine, and melt it together with oil of olives; put more or leſs, according as you

would have the matter harder or ſofter; a little vermilion alſo ſhould be mixed with it, to give it a ſofter colour.

When the compoſition is made, the figure is worked up with the hand, and thoſe ebauchoirs, made uſe of by ſculptors in their earthen figures.

Practice is the principal miſtreſs in this ſort of work, which, at firſt, is not ſo eaſy as that in clay.

SCULPTURE *in wood*.—The firſt thing that a ſculptor of wood is to do, is to chuſe the beſt wood he can, and that which is the moſt proper for the work he undertakes.

If it is ſomething great, requiring ſtrength and ſolidity, he ought to chuſe the hardeſt wood, and that which keeps beſt; but, for things of moderate bigneſs, pear or apple tree will do. And, becauſe the latter are alſo very hard, when the artificers are to make ornaments that ſhould be delicate, they chuſe tender wood; but, however, firm and cloſe, ſuch as the linden-tree, which is excellent for that purpoſe, the chiſſel cutting it more neatly and eaſily than any other wood.

As to ſtatues, we find the ancients made them of all ſorts of wood: There was one of Apollo, of box, at Sicyone; that of Diana, at Epheſus, was of cedar.

As theſe two ſorts of wood are very hard and incorruptible, and chiefly cedar, which, according to Pliny, ſeems to be deſigned never to have an end, the ancients frequently made the images of their gods of it.

In the temple built in honour of Mercury, on mount Cyllene, there was an image of that god made of citron wood, which was very much in eſteem; the image was eight feet high.

Cypreſs being a tree, which is not apt to corrupt, nor be damaged by worms, ſtatues were alſo made of it; as alſo of the palm-tree, olive-tree, and ebony, of which there was a figure of Diana, at Epheſus; as alſo of ſeveral other ſorts of wood.

In like manner there were images of Jupiter, Juno, and Diana, made of the vine-tree in other places.

When a figure or piece is well wrought, they ſay it is well cut. The beauty of it conſiſts in its being cut tenderly, and when there appears neither dryneſs nor ſtiffneſs in it.

If a ſculptor would undertake any great work, though it be but of one figure, he had better make uſe of ſeveral pieces of wood than of one whole piece, which, as well in figures as ornaments, is apt to crack and cleave; for an intire piece of wood may not, perhaps, be dry at heart, though the outſide may ſeem very dry.

It ought to have been cut ten years before the ſculptor works upon it in ſuch performances.

A ſculptor, in wood, uſes ſome of the ſame tools as a joiner.

SCULP-

SCULPTURE *in marble and other ſtone.*— Sculptors, who work in marble or ſtone, make uſe of good ſteel tools, ſtrong, and well tempered, according to the hardneſs of the matter.

The firſt thing to be done, is to ſaw out a great block of marble of the bigneſs of the work to be performed, which is done with an iron ſaw very ſmooth, and without teeth, and, while the marble is ſawing, water conſtantly drips on free-ſtone duſt into the clift. The free-ſtone duſt ſerves to ſaw the marble, and the water makes it fall off, and alſo hinders the ſaw from heating in the friction.

The block being ſawed, the ſculptor ſmooths the marble he intends to work upon, by taking away its ſuperfluities by a beel and point. When he has ſmoothed it fit for his work, he goes over it again with a finer point, called dog's-tooth, having two points, but not ſo ſharp as the other.

After this he makes uſe of his gradine, which is a flat cutting tool with three teeth, but not ſo ſtrong as the point; with this tool the artificer advances his work; he then takes off, with a ſmooth chiſſel, the ſcratches the gradine left on the marble, and uſes it with dexterity and delicacy, to give ſoftneſs and tenderneſs to his figure; till, at laſt, taking a raſp, which is a ſort of file, his work is in a condition to be poliſhed.

There are ſeveral ſorts of raſps, ſome ſtraight, ſome crooked, ſome harder, ſome ſofter, the one than the other.

When the ſculptor has ſo far finiſhed his work, he uſes pumice-ſtone and putty, to make all the parts ſmooth and ſleek: Then he goes over it with tripoli; and, when he would give it more luſtre, rubs it with leather and ſtraw-aſhes.

Beſides the tools beforementioned, ſculptors uſe the pick, which is a ſort of hammer, pointed and ſharp at one end; at the other are teeth made of good ſteel and ſquared, that they may be the ſtronger. This ſerves to break the marble, and is uſed in thoſe caſes, where the workman cannot make uſe of both his hands to manage his mallet and chiſſel.

The bouchard is a piece of iron well ſteeled at the bottom, and pointed at both ends like a diamond; it is uſed to make an hole of equal bigneſs, which cannot be done with cutting-tools.

The bouchard is ſtruck with the beetle, and the points, breaking the marble, reduce it to powder.

Water is thrown from time to time into the holes, in proportion to the depth, to waſh out the duſt of the marble, and prevent the iron from heating, which would ſpoil the temper of the tool.

The other tools neceſſary in ſculpture, are the roundel, which is a ſort of chiſſel made round; the houguet, which is a ſort of

pointed ſquare chiſſel; beſides which, the ſculptors muſt have compaſſes to take all the meaſures in their figures.

When the ſculptors undertake any conſiderable piece of work, whether ſtatues, baſs-reliefs, or the like, they always make a model in clay of the ſame bigneſs they intend the figure ſhould be; and becauſe earth or clay ſhrinks as it grows dry, and is apt to break, it ſerves only for a mould of plaiſter, in which are made figures of plaiſter alſo.

This they repair, and afterwards uſe for a model, from which they take all their meaſures, and govern themſelves in cutting the marble.

To guide them in their work, they put on the head of this model an immoveable circle, divided into degrees, with a moveable rule fixed in the middle of the center, and divided alſo into parts: At the end of the rule hangs a line with a lead, by which they take all the points, which are to be the ſame on the block; a-top of which hangs a line in like manner as in the model.

But there are excellent ſculptors, who do not approve of this method, ſaying, if the model ſtirs never ſo little, their meaſures vary, and therefore uſe the compaſſes in meaſuring all the parts.

As to figures made of hard ſtones, ſuch as that of Leu, &c. the artificers do the ſame as in working in marble, excepting that, the matter not being ſo hard, their tools are not ſo ſtrong, and ſome of them are of a different form, as the raſp, the hand-ſaw, the ripe, the ſtraight chiſſel with three teeth, the roundel, and the grater.

Sculptors have commonly a bowl-diſh, in which they temper plaiſter with the ſame ſtone as their figures are made of, and make a powder of it, with which they fill the little holes, and repair the defects they meet with in the ſtones.

If they work in free-ſtone, they have tools on purpoſe, for free-ſtone is apt to ſcale, and does not work like marble.

SEBENZANUS fecit, intends Martin Rota, of Sabina.

SECRECY, is repreſented, in painting, &c. by a very grave lady all in black, carrying a ring in her mouth, as if ſhe intended to ſeal it up.—Grave, becauſe there is no greater ſign of lightneſs than to divulge a friend's ſecret; in black, denotes conſtancy, never taking any other colour; the ring is the emblem of Secrecy and friendſhip.

SECURITY, is repreſented, in painting, &c. by a woman in a ſlumber, leaning one hand upon a ſpear, and the elbow of the other on a pillow.—The ſpear denotes pre-eminence and command; the pillar, the confidence, reſoluteneſs, and firmneſs of a man, when ſecure from danger; for ſecurity is the ſtrength of the mind, that no worldly affair can ſtagger; it is an immoveable force of mind in managing buſineſs; for nothing is able to

divert

divert a man from his deſign, if grounded on reaſon, who is endued with that quality.

Civil SEDITION, is repreſented, in painting, &c. by a woman with a halbert in one hand, and a branch of ever-green oak in the other; two dogs at her feet, ſnarling one at another.—The branch ſignifies, that it being ſo ſtrong a plant, that it is not eaſy to be cut to pieces, yet, by ſtriking one againſt another, they are ſoon broken; ſo the republic, being well guarded, difficultly yields to an enemy, yet, claſhing one againſt another, by Sedition, ſoon falls; the two dogs denote Sedition, that, being of the ſame ſpecies, yet quarrel for meat or a ſalt bitch.

SEPTEMBER, is repreſented, in painting, &c. in a purple robe, with a chearful countenance, having on his head a coronet of white and purple grapes, holding in his left hand a handful of oats, with a cornucopia of pomegranates, and other ſummer fruits; and in his right hand a balance.

Of limning SERPENTS. Draw the backs of ſerpents with bice, and downwards, towards the belly, with a pale black, the back ſpeckled with black ſpecks.

The adder with red lead, vermilion, and ſaffron, with blue on the back; and, on the belly below, yellow maſticote and white, ſpeckled all over with white ſpots.

The crocodile with a dark thin green, from the back downwards towards the belly; below the belly with maſticote, ſo that the yellow and green may enter one into the other, and vaniſh away into one another: Shadow him with indigo and ſmalt, and heighten the belly with maſticote and white: The mouth, before and within, reddiſh, the ſcales black, the claws of a blackiſh green, the nails wholly black.

SERVITUDE, is repreſented, in painting, &c. by a young girl, her hair diſhevelled, in a ſhort white gown, a yoke on her ſhoulders, a crane by her holding a ſtone in her foot.—Young, the better to ſupport labour; her hair ſhews, that thoſe who depend on others, neglect themſelves; the yoke, that ſhe ought to bear it patiently; the crane is a ſymbol of vigilance; the white gown a ſervant's faithfulneſs.

SEVERITY, is repreſented, in painting, &c. by an old matron in a royal habit, with a crown of laurel in one hand; a club, on which is a naked ponyard fixed; in the other a ſceptre, in the poſture of commanding; a fierce tyger at her feet.—Her habit ſhews, that men in dignity are ſevere; the club, firmneſs; the ponyard, that Severity is inflexible, as to inflicting puniſhment, when reaſon requires it.

S. F. ſtands for Simon Friſius; theſe are portraits engraved by Henry Hondius.

SGRAFIT, in painting, a term derived, either from the Italian

lian Sgrafficiata, ſcratch-work, or the Greek γράφω. It is uſed to ſignify a method of painting with black and white only, not in freſco; yet ſuch as will bear the weather. Sgrafit is both the deſign and the painting all in one; it is chiefly uſed to embelliſh the fronts of palaces, and other magnificent buildings. See SCRATCH-WORK.

S. G. S. ſignifies Simon Guillain, ſculptor. This artiſt, who was born in Paris, engraved eighty different figures of Hannibal Caracci, anno 1646.

SHADOW is a plan, where the light is weakened by the interpoſition of ſome opaque body before the luminary.

SHADOW, in optics, is a privation of light by the interpoſition of an opaque body.

But, as nothing is ſeen but by a light, a mere Shadow is inviſible.

When, therefore, we ſay, we ſee a Shadow, it is partly that we ſee bodies placed in the Shadow, and illuminated by light reflected from collateral bodies, and partly that we ſee the confines of light.

If the opaque body, that projects the Shadow, be perpendicular to the horizon, and the place it is projected on be horizontal, the Shadow is called a right Shadow: Such are the Shadows of men, trees, buildings, mountains, &c.

If the opaque body be placed parallel to the horizon, the Shadow is called a verſed Shadow; as the arms of a man ſtretched out, &c.

The laws of the projection of SHADOWS *from opaque bodies.*

1. Every opaque body projects a Shadow in the ſame direction with its rays; that is, towards the part oppoſite to the light. Hence, as either the luminary or the body changes place, the Shadow likewiſe changes.

2. Every opaque body projects as many Shadows, as there are luminaries to enlighten it.

3. As the light of the luminary is more intenſe, the Shadow is the deeper. Hence the intenſity of the Shadow is meaſured by the degrees of light, that ſpace is deprived of.

4. If a luminous ſphere be equal to an opaque one it illuminates, the Shadow, which this latter projects, will be a cylinder, and conſequently will be propagated ſtill equal to itſelf, to whatever diſtance the luminary is capable of acting; ſo that, if it be cut in any place, the plane of the ſection will be a circle, equal to a great circle of the opaque ſphere.

5. If the luminous ſphere be greater than the opaque one, the Shadow will be conical. If therefore the Shadow be cut by a plane, parallel to the baſe, the plane of the ſection will be a circle;

circle; and that ſo much the leſs, as it is a greater diſtance from the baſe.

6. If the luminous ſphere be leſs than the opaque one, the Shadow will be a truncated cone, and conſequently grows ſtill wider and wider; and, therefore, if cut by a plane, parallel to the ſection, that plane will be a circle, ſo much the greater, as it is further from the baſe.

The way and manner of SHADOWING. 1. If it be a ſurface only, it is beſt ſhadowed by drawing lines, either ſtraight or oblique, according as the ſuperficies is, through the better half of it.

2. If it be in a body, it is a double Shadow, and is uſed when a ſuperficies begins to forſake your ſight, as in columns and pillars, where it is doubly darkened; and repreſents to the eye, as it were, the backſide, leaving that unſhadowed to the light.

3. The triple Shadow is made by croſſing over again the double Shadow, and is uſed for the inward parts of things, an in clefts of the earth, wells, caves, the inſides of pots, cups, and diſhes.

4. In Shadowing, let the Shadow fall one way, that is, on the ſame ſide of the body, leaving the other to the light.

Thus in a man, if you begin to Shadow his right cheek, Shadow alſo the right part of his neck, arm, thigh, ſide, leg, &c.

5. But, if the light ſide of the body be darkened, by the oppoſition of ſome other body ſtanding between the light and it, it muſt receive a contrary Shadow, according as the light is obfuſcated, or rendered dim.

Thus, if three pillars ſtand together, that in the middle muſt receive a Shadow on both ſides.

6. All circular bodies muſt have a circular Shadow according to the firſt ſection, according to their form or appearance, and the orbicular Shadow of the object, which caſteth it.

7. The Shadow muſt be made to grow fainter and fainter, according to the greatneſs of the diſtance from the opaque body Shadowing.

And the reaſon is, becauſe all Shadows are pyramidal; in which caſe, ſpace of place prevails with the light againſt the ſhadow.

8. Where contrary Shadows concur, let the meaneſt and moſt ſolid body be firſt ſerved; and, in double and triple Shadows, let the firſt lines be very dry, before you croſs them, for fear of blotting.

9. All perfect lights receive no Shadow at all; but, being manifeſt, are only to be made apparent by that body that receives them, whoſe Shadow muſt be according to the efflux of light; but the colour of the light ought to agree with the medium which receives it; whether it be air, cryſtal, water, amber, glaſs, tranſparent wine, or the like.

10. Some

10. Some artists have used a little too much white, yet with a certain kind of grace, although their work has been much lighter than the pattern in the lightest part of the body; but then, withal, they make the shadow as much too dark in the obscure parts, where the light fell by reflection, to set forth the decay of light in the same part of the body; by this means the work seems to be much raised, thereby deceiving the sight.

11. For the light, which comes to the eye in a pyramidal form, comes with a blunter and larger angle, and so represents the object the more evidently; whence comes an admirable eminence; the cause of which is, for that there is much more Shadow than is necessary in that part, where the light decays most.

12. So that, the visual lines failing, that part comes to the eye with a more acute angle, and therefore cannot be seen so perfectly, but seems to fly inwards, and stand farther off.

SHADOW, in painting, is an imitation of a real Shadow, effected by gradually heightening and darkening the colours of such figures, as by their dispositions cannot receive any direct rays from the luminary, that is supposed to enlighten the piece.

The management of the Shadows and lights makes what the painters call the clair obscure.

Of SHADOWING *a naked body.* 1. The Shadows of the neck in a child or young woman are very fine, rare, and hard to be seen; in a man the sinews and veins are expressed by Shadowing of the rest of the neck, and leaving them white; the shoulder is shadowed underneath; the brawn of the arm must appear full and white, shadowed on one side.

2. The veins of the back of the hand or knuckles are made with two or three hair strokes, with a fine touch of the pen.

3. The paps of a man are shewn by two or three strokes given underneath; in a woman, by an orbicular shade, somewhat deep; the ribs retain no Shadow, except the figure be represented lean.

4. The belly is made imminent by Shadowing underneath the breast-bone and the flank: The brawn of the thigh is shadowed by drawing small hair strokes from the hip to the knee, and crossed again overthwartly.

5. The knee is to be finely shadowed underneath the joint; the shin-bone appears by Shadowing one half of the leg with a single Shadow.

6. The ancle-bone appears by Shadowing a little underneath, as in the knees; and the sinews of it must seem to take beginning from the midst of the foot, and to grow bigger as they approach nearer to the toes.

7. The Shadows of the foot must take place according as reason

Fig. 1.

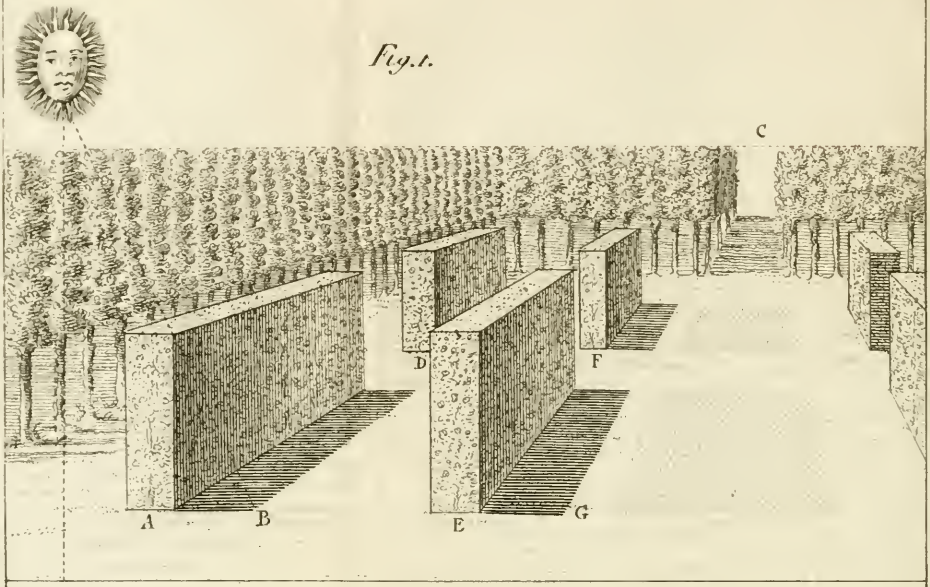


Fig. 2.

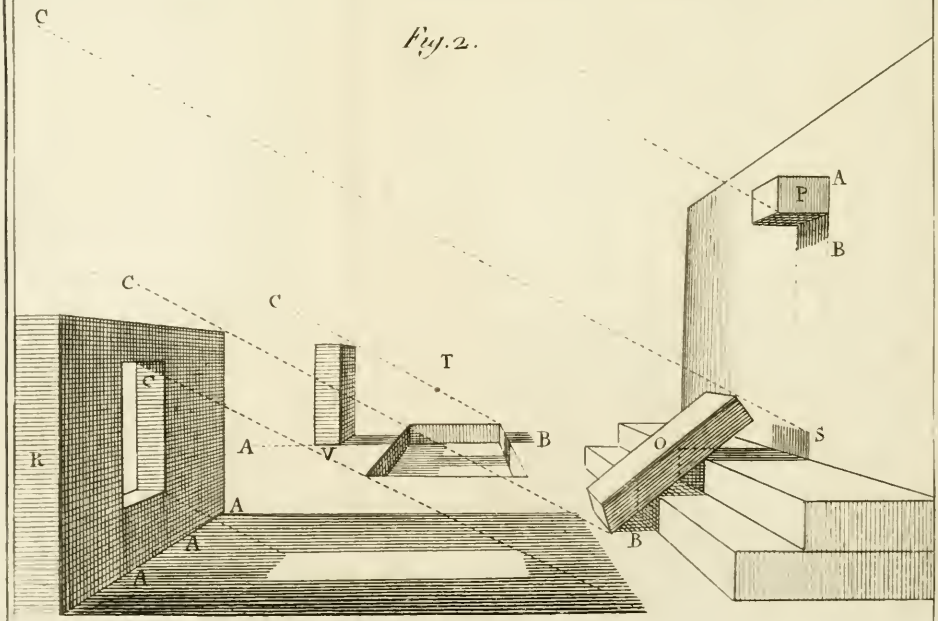


Fig. 2

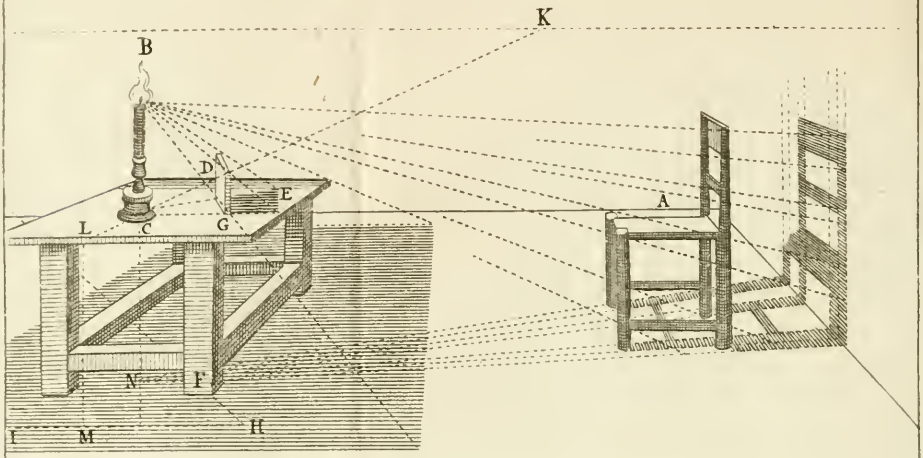
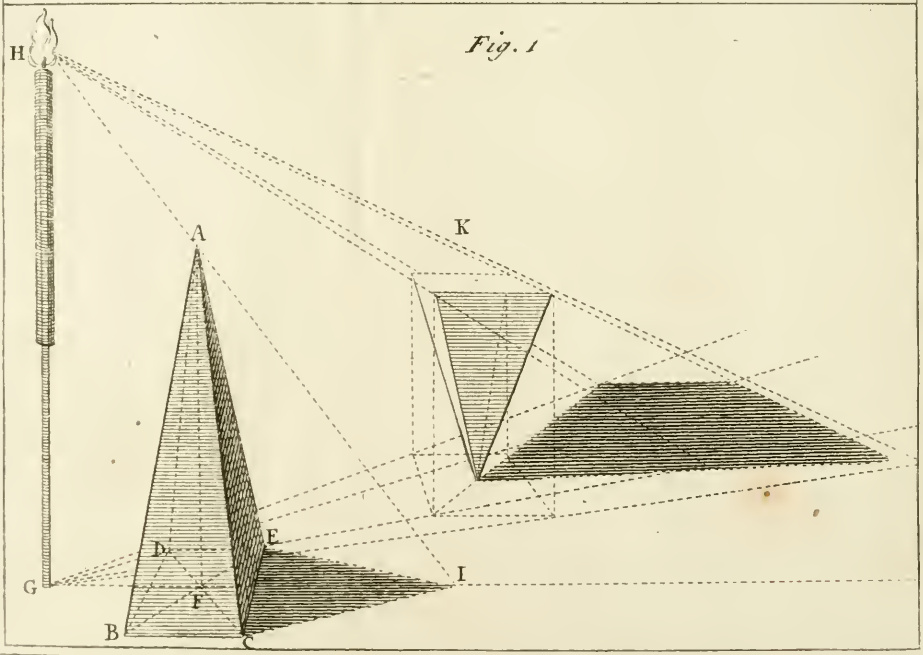
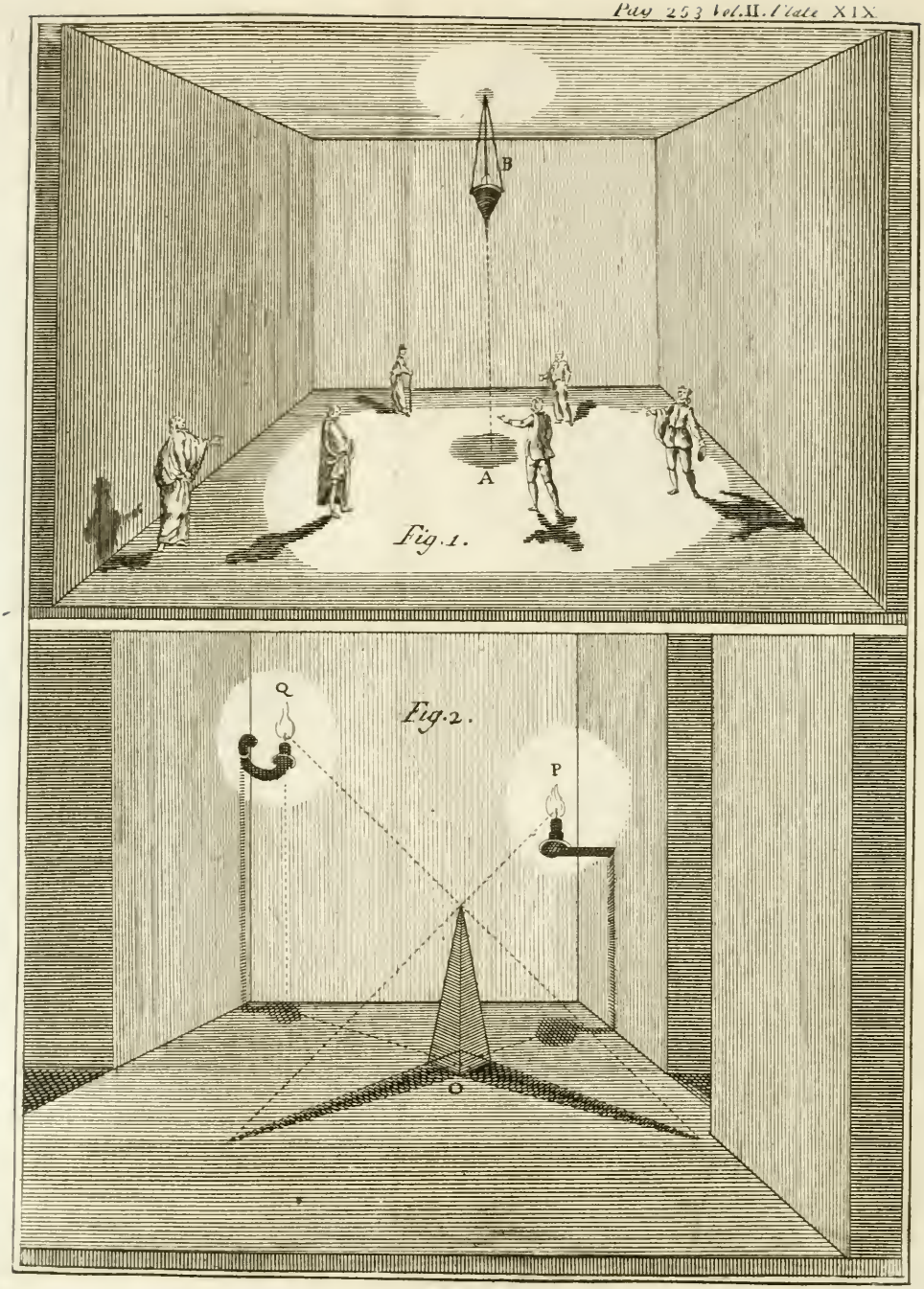


Fig. 1



Toms sculp



Toms sculp.

ſon and occaſion require; for which, as alſo in all the former precepts, the having of good prints will be of no ſmall advantage.

Of the origin of SHADOWS.—To define a natural Shadow, we do not call it an abſolute privation of light; for this would be to form a perfect obſcurity, wherein objects would be no more ſeen than their Shadows: But we mean, by Shadow, a diminution of light, occaſioned by the interpoſition of ſome opaque body, which receiving and intercepting the light that ſhould be caſt on the plane, it is placed on, there gives a Shadow of its own form.

For light, being of a communicative nature, diffuſes itſelf on every thing, not hid from it; particularly on every thing that is plain and ſmooth: But, where there happens the leaſt elevation, a Shadow is produced, which exhibits the figure of the illumined part on the plan.

The diverſity of luminaries occaſions a difference of Shadows; for, if the body that illuminates be larger than the body illumined, the Shadow will be leſs than the body. If they be equal, the Shadow will be equal; and, if the luminary be leſs than the object, the Shadow will be continually enlarging, as it goes further off.

Of the difference of SHADOWS.—From what has been obſerved before may be drawn this concluſion, that the ſame object may project Shadows of divers forms, though ſtill illumined on the ſame ſide; the ſun giving one form, the torch another, and the day-light no preciſe form at all.

The ſun always makes its Shadow equal to the object, that is, projects it parallel-wiſe.

It is certainly of conſequence to all painters, engravers, &c. to obſerve theſe rules preciſely, and not to take the rules for candles, lamps, and the like, in lieu thereof, as is too frequently done.

The Shadow of a torch or flambeau is not projected in parallels, but in rays proceeding from a center, whence the Shadow is never equal to the body, but always bigger, and grows bigger as it recedes farther. It appears therefore a groſs abuſe to repreſent the Shadow of a torch, like that of the ſun; and the Shadow of the ſun like that of a candle, when the difference is ſo conſiderable.

There is a third kind of Shadow, neither produced by the ſun nor a torch; but only a fine ſunny day, which wanting ſtrength to finiſh, and define its form, occaſions a dimneſs near the object. Now, for this there is is no certain rule, but every body conducts it at diſcretion.

All theſe Shadows, both of the ſun, of the torch, and of the day-

day-light, muſt appear darker than the parts of objects not illumined; and that part of the Shadow that is moſt remote from the object, muſt be ſtill darker than that nearer it.

To find the form of the SHADOWS. Though perſpective is defined to be the repreſenting objects, which are on the ground, or a horizohtal plane, upon a plane perpendicular to the horizon; yet in the buſineſs of Shadows it is quite the reverſe, ſince we there conceive a body raiſed over the plan, which, being illumined, caſts its own Shadows on the plan.

To find a Shadow, two things are propoſed, viz. light and a body. Light, though quite contrary to Shadow, is yet what gives it its being; as the body or object is what gives its form or figure.

To conceive the nature of Shadows more clearly, and render the practice more eaſy, it muſt be obſerved, that there are two points to be made uſe of; one of them the foot of the light, which is always taken on the plan the object is placed upon; the other the luminous body; the rule being common to the ſun, torch, &c. with this difference, that the ſun's Shadow is projected in parallels, and that of the torch in rays from the ſame center.

SHADOWS *from the ſun.* The ſun, being vaſtly larger than the whole globe of the earth, muſt give all its Shadows pointed, by reaſon it illumines more than half of them.

In conſequence of this demonſtration, we might conclude, that all the ſun's Shadows muſt be leſs than the bodies that project them, and diminiſhed more and more, as they recede further and further.

Now this would be true, were there any relation between the body illuminated and the body illumining; but, as all objects on the earth are ſo ſmall in compariſon of that luminary, the diminution of their Shadows is imperceptible to the eye which ſees them always equal, i. e. either broader or narrower than the body that forms them; on this account all the Shadows cauſed by the ſun are made in parallels.

From the whole it appears, that, to find the Shadow of any body whatever oppoſed to the ſun, a line muſt be drawn from the top of the luminary, perpendicular, to the place where the foot of the luminary is to be taken; and, through this place, an occult line to be drawn through one of the angles of the plan of the object, and another from the ſun to the ſame angle; and the interſection of the two lines will ſhew how far the Shadow is to go: All the other lines muſt be drawn parallel hereto.

The Shadows of the ſun are equal in objects of the ſame height, though at a diſtance from each other. See plate XVII, fig. 1.

Experience teaches that ſeveral ſtiles or elevations of the ſame height, removed to a diſtance from each other, project equal Shadows

dows at the same time; I say at the same time, for they are lengthening and shortening, in proportion as the sun comes nearer, or recedes further off; one or other of which he is continually doing.

For this reason, when the Shadow of an object is to be cast any way, you must determine the place of the sun, and the point underneath, to draw two occult lines from the same, for the extremity of the Shadow; as here, the palisado A gives the extreme of its Shadow in B; and if, from this point B, you draw a line to the point of sight C, this line B C will be the Shadow of the palisado D, as well as that of A, and of all the rest in the same line to the very point of sight.

In effect, it must be held for a certain maxim, that Shadows always retain the same point of sight as the objects.

On the footing of this observation, that objects of the same height give equal Shadows; if you would give the Shadow of the palisado's E F, which are of the same height as A D, take in your compasses the distance A B, and set it off from the foot of the palisado E, by which you will have E G; then from G draw a line to the point of sight C; and thus you are to proceed, though the walks were infinite.

Though the sun is made to appear in the first figure, it must not be imagined that he is so near the objects: My intention was to shew, that the rays proceed from him, when at such a height, though far without the limits of the piece.

As in this second figure, which yet has the line, for the foot of the sun A B, and that of the rays of the sun C; by reason that those are always required for finding the extremities of the Shadows. See fig. 2.

The Shadow of the object O is found by continuing the line A B, and making it rise over the steps, and against the wall, till cut by the ray in the point S, by the rays passing over the corner of the object, and from S drawing a line to the point of sight T.

To find the Shadow of the object P, it must be remembered that the foot of the light must always be supposed on the plan where the object is placed. Accordingly the ray C, cutting the little line A B, shews how far the Shadow of the little object P must go, to be thence drawn to the point of sight T.

The object V casts its Shadow all along, though in its way it descends into a ditch.

The Shadow of the wall R is found by the same rule as the rest; as appears from the lines A B, and the ray C.

SHADOWS *on several parallel planes*. The first plane here is the floor, whereon the chair A, plate XVIII, fig. 2, stands; the second plane is the upper part of the table, parallel to the first, and may be either above or below it.

There

There might alſo be more of theſe planes, wherein to find the foot of the illuminating body, in order to come at the Shadow of the object.

Suppoſe the foot of the illuminating body to be C, and the flame B; from theſe points C and B draw lines, through the upper and under part of the object D, which will give the Shadow E upon the table.

To find the Shadow of the chair A, which is placed on the ground, determine the foot of the luminary on the table in C on the ground; this is cleared by the following inſtructions.

From the point of diſtance, which is here ſuppoſed to be without the limits of the paper, draw a line through the foot of the table F; then from the angle G, upon the table, let fall a perpendicular, cutting the line F in the point H; and from H draw a parallel to the baſe H I, which is equal to the upper part of the table, and will direct to the thing required.

For drawing a line from the point of ſight K, through the foot of the luminary C, to the extremity of the table L; from the ſame point L let fall a perpendicular to H I, which will give the point M.

Then from M draw a line to the point of ſight K, in which line M K will the foot of the luminary be found.

To determine the preciſe point, let fall a perpendicular from the point C, which, cutting the line M K, will give the point N for the foot of the luminary.

This point N being thus found, there will be no difficulty in finding the Shadow of the chair A, the method being the ſame as for the other objects taught before; that is, from the foot of the luminary N, draw lines through all the angles of the plan of the chair, and other lines through the upper part of the chair, from the luminary B; theſe latter, by interſecting the former, expreſs the bounds of the Shadow. For the reſt, the figure gives ſufficient directions.

The SHADOW *of an erect and inverted pyramid by torch-light, plate* XVIII, *fig.* 1. The Shadow of an erect pyramid by torch-light falls as it would by the light of the ſun; and in both caſes there is but one line, whereon the vertical point of the pyramid will be found.

Upon the planes B C D E draw the diagonals E B and D C; through the central point F raiſe the perpendicular F A; and from the four points B C D E draw lines to the point A, and the pyramid will be erected.

Then, to find its Shadow, draw an indefinite line from the baſis G of the illuminating body, paſſing through F; and from the central flame of the torch H draw another line over the vertex of

of the pyramid in the line G F, till it cut the point I, which point will limit the Shadow of the pyramid.

Laſtly, draw a line from C to I, and another from E to I, and the triangle C I E will be the Shadow of the pyramid.

To gain the Shadow of an inverted pyramid K, draw perpendicular lines from the angular points of its baſe, and form the ſubjacent plane, by means thereof, after the manner directed for the ſun.

And, from all the angles of this plane, draw lines to the baſe of the torch G; then from H, the central point of the flame, draw other lines touching all the angles of the baſe of the inverted pyramid, and dividing thoſe of the plane, whereby the Shadow will be defined.

The different diſpoſitions and heights of SHADOWS *by torch-light.* Shadows from the ſun are all caſt the ſame way, and have the ſame diſpoſition; it being impoſſible that the ſun ſhould occaſion one Shadow to tend towards the eaſt and another towards the weſt at the ſame time.

It is true, in different times of the day it makes this difference; but never in one and the ſame hour.

But the torch, candle, and lamp have always this effect; for, in what place ſoever one of theſe luminaries be found, provided there be a number of objects about them, the Shadows will be caſt various ways, ſome to the eaſt, ſome to the weſt, ſome to the north, and others to the ſouth, according to the ſituation of the objects around the luminary, the foot of which, here repreſented by A, ſerves as a common center, from which they all proceed; and the flame, here repreſented by B, ſhews where they are to terminate, though at different diſtances; as the neareſt produce the ſhorteſt Shadows and the remoteſt the longeſt. See plate XIX, fig. 1.

The SHADOW *doubled.* When two luminaries ſhine on the ſame object, two Shadows muſt be produced, each of the luminaries occaſioning its reſpective Shadow, and that in proportion to the circumſtances of the luminary.

If ſuch luminaries, when at equal diſtances, be equal, the Shadows themſelves muſt be equal; but if there be any diſproportion, that is, if one of them be a little bigger than the other, or one of them a little nearer the object than the other, the Shadows will be unequal.

Thus, the object O being illuminated by two candles, the one near at hand in P, the other farther off in Q, it is evident the Shadow of the candle P will be deeper than that of the candle Q, as is expreſſed in the figure. See plate XIX, fig. 2.

The rules for ſuch Shadows are the ſame with thoſe already given, both for the ſun and the torch.

The reaſon why SHADOWS *fall all one way.* Firſt, becauſe the light does not, with all its brightneſs, illuminate any more than that part that is directly oppoſite to it.

Secondly, it proceeds from the nature of the eye; for the firſt part of the body, coming to the eye with a bigger angle, is ſeen more diſtinctly; but the ſecond part, being further off, is ſeen by the eye in a leſſer angle.

And if you are to draw two or three men ſtanding together, one behind another, though all of them receive equally the light, yet the ſecond, being further from the eye, muſt be ſhadowed darker, and the third more dark than the ſecond.

It is a general obſervation, that, if you draw many figures together in one room, they muſt all be ſhadowed on the contrary ſide from the light, whether it comes in at the middle, or end, or any where elſe.

Again, that part of the body muſt be made lighteſt, which hath the light moſt directly oppoſite to it; as, if the light be placed above the head deſcending, then the top of the head muſt be made the lighteſt, the ſhoulder next lighteſt, and ſo you muſt loſe by degrees.

That part of the body that ſtands fartheſt out muſt be made lighteſt, becauſe it comes neareſt to the light, and the light loſes ſo much of its brightneſs, by how much any part of the body bends inward; becauſe thoſe parts that ſtick out, do hinder the luſtre of the full brightneſs of the light from thoſe parts that fall any thing more inward; therefore, by how much one part of the body ſticks out beyond the other, it muſt be made ſo much lighter than the other; or, if it fall more inward, then it muſt be made more dark.

As for ſattins and ſilks, and all other ſhining ſtuffs, they have certain bright reflections, exceeding bright, with ſudden light glances, eſpecially where the light falls the brighteſt; and ſo the reflections are leſs bright, by how much the garment falls more inward from the light.

The like is ſeen in armour, and braſs pots and kettles, or any glittering metals; you may ſee a ſudden brightneſs in the middle or center of the light, which cauſes the ſhining nature of ſuch things.

SHAMMY or Chamois leather, popularly called Shammy; a kind of leather, either dreſſed in oil, or tanned, much eſteemed for its ſoftneſs, pliancy, &c.

It is prepared from the ſkin of the chamois, a kind of wild goat, called alſo iſard, inhabiting the mountains of Dauphiny, Savoy, Piedmont, and the Pyreneans.

Beſides the ſoftneſs and warmneſs of the leather, it has the faculty

faculty of bearing ſoap without damage, which renders it very uſeful on many accounts.

In France, &c. ſome wear the ſkin crude, without any preparation. It is alſo uſed for the purifying mercury, which is done by paſſing it through the pores of this ſkin, which are very cloſe.

The true chamois leather is counterfeited with common goat, kid, and even ſheep ſkin; the practice of which makes a particular profeſſion, called, by the French, chamoiſeur. The laſt is the leaſt eſteemed, yet ſo popular, and ſuch vaſt quantities prepared, eſpecially about Orleans, Marſeilles, and Thoulouſe, that it may not be amiſs to give the method of preparation.

The manner of chamoiſing, or of preparing ſheep, goat, or kid ſkins in oil, in imitation of chamois. The ſkins, being waſhed, drained, and ſmeared over with quick-lime on the fleſhy ſide, are folded into two lengthways, the wool outwards, and laid on heaps, and ſo left to ferment eight days; or, if they had been left to dry after fleaing, for fifteen days.

Then they are waſhed out, drained, and half dried, laid on a wooden leg or horſe, the wool ſtripped off with a round ſtaff for the purpoſe, and laid in a weak pit, the lime whereof had been uſed before, and had loſt the greateſt part of its force.

After twenty-four hours they are taken out, and left to drain twenty-four more; then put in another ſtrong pit. This done, they are taken out, drained, and put in again by turns, which begins to diſpoſe them to take oil; and this practice they continue for ſix weeks in ſummer, or three months in winter; at the end whereof they are waſhed out, laid on the wooden leg, and the ſurface of the ſkin on the wool ſide peeled off, to render them the ſofter; then, made into parcels, ſteeped a night in the river, in winter more; ſtretched, ſix or ſeven over one another, on the wooden leg, and the knife paſſed ſtrongly on the fleſh ſide, to take off any thing ſuperfluous, and render the ſkin ſmooth.

Then they are ſtretched, as before in the river, and the ſame operation repeated on the wool ſide; then thrown into a tub of water with bran in it, which is brewed among the ſkins till the greateſt part ſtick to them; and then ſeparated into diſtinct tubs till they ſwell, and riſe of themſelves above the water.

By this means, the remains of the lime are cleared out: They are then wrung out, hung up to dry on ropes, and ſent to the mill, with the quantity of oil neceſſary to full them. The beſt oil is that of ſtock-fiſh.

Here they are firſt thrown in bundles into the river for twelve hours, then laid in the mill-trough, and fulled without oil till they are well ſoftened; then oiled with the hand, one by one, and thus formed into parcels of four ſkins each, which are milled, and

dried on cords a ſecond time, then a third; then oiled again and dried.

This proceſs is repeated as often as neceſſity requires; when done, if there be any moiſture remaining, they are dried in a ſtove, and made up into parcels, wrapped up in wool; after ſome time they are opened to the air, but wrapped up again, as before, till ſuch time as the oil ſeems to have loſt all its force, which it ordinarily does in twenty-four hours.

The ſkins are then returned from the mill to the chamoiſeur to be ſcoured, which is done by putting them into a lixivium of wood-aſhes, working and beating them in it with poles, and leaving them to ſteep till the ley hath had its effect; then wrung out, ſteeped in another lixivium, wrung again, and this repeated till all the greaſe and oil be purged out. They are then half dried, and paſſed over a ſharp-edged iron inſtrument, placed perpendicular in a block, which opens, ſoftens, and makes them gentle: Laſtly, they are thoroughly dried, and paſſed over the ſame inſtrument again, which finiſhes the preparation, and leaves them in form of chamois.

Kid and goat ſkins are chamoiſed in the ſame manner as thoſe of ſheep, excepting that the hair is taken off without the uſe of any lime; and that, when brought from the mill, they undergo a particular preparation, called ramailing, the moſt delicate and difficult of all the others.

It conſiſts in this, that, as ſoon as brought from the mill, they are ſteeped in a fit lixivium; taken out, ſtretched on a round wooden leg, and the hair ſcraped off with a knife; this makes them ſmooth, and, in working, caſt a kind of fine nap. The difficulty is in ſcraping them evenly.

SIBYLS, are, according to ſome, in number twelve; but Martianus will have but two, Pliny and Solinus but three, and Salmaſius but the firſt ſeven; but Varro allows ten.

They are generally repreſented as young women; yet ſome of them were old, as ſhe which ſold the books to Tarquin.

Theſe Sibyls were in high eſteem, by ſome, on account of their prophecies of Chriſt.

SIBYLLA *Agrippina*, is repreſented, in painting, &c. as a woman in years in a roſe-coloured garment: She is called by divers authors Ægyptica. Suidas relates, that ſhe propheſied in Egypt in the days of Pharaoh.—Her prophecy imported, that 'Hands ſhould be laid on the inviſible world; his beauty ſhall 'not appear, his mother's womb ſhall incloſe him, and he, who 'is eternal joy, ſhall weep.'

SIBYLLA *Lybica*, was born in Lybia, and was cotemporary with Euripides. Lactantius allows her the ſecond place among the Sybils for her admirable predictions, viz. 'The time is not

'far off, when the God of light ſhall be inviroued with the ra-'diant beams of the ſun.' She is repreſented, in painting, &c. as an elderly woman, in purple garments, crowned with a garland of flowers.

SIBYLLA *Delphica*, was ſo called from her being born at Delphos: She lived before the ſiege of Troy, and foretold the manner of that war; and propheſied of Chriſt as follows: 'Know 'him for thy Lord who is the Son of God: A prophet ſhall be 'born of a pure virgin without the ſeed of man.' She is repreſented, in painting, &c. as a young woman, cloathed in a black garment, holding in her hand a horn.

SIBYLLA *Phrygia*, is repreſented, in painting, &c. as having an old, ſaturnine, hard-favoured face, clad in red garments; many ſuppoſe her to be Caſſandra. She propheſied very divinely of the day of judgment, as follows: 'A trumpet from heaven 'ſhall give a very terrible and dreadful ſound; all kings ſhall 'ſtand before the judgment-ſeat of God, who will at once judge 'both the juſt and unjuſt.'

SIBYLLA *Herophila*, is repreſented, in painting, &c. as a young woman very fair, clad in a purple garment, and having her head covered with a veil of lawn: She is alſo called Erythrea, and, as Apollodorus Erythreus writes, was a citizen of Erythrea, in Ionia. She propheſied to the Greeks, that they ſhould overcome Troy; and alſo of Chriſt as followeth: 'The earth ſhall ſweat as a to-'ken of judgment; a king ſhall come from heaven, whoſe king-'dom ſhall be everlaſting.'

SIBYLLA *Europea*, is ſaid to have been born in Jeruſalem; but the place of her birth is not certainly known. She propheſied thus: 'The Almighty ſhall come, accompanied with his legions 'of angels; he ſhall walk over the hills and clouds, he ſhall 'live poorly and in ſilence, he ſhall bear rule.' She is repreſented, in painting, &c. as a comely young woman, having a high red-coloured face, clad in a garment of cloth of gold, and a fine veil on her head.

SIBYLLA *Perſica*, lived in the hundred and twentieth Olympiad, and was born in a town called Noe, by the Red-ſea. She propheſied as follows: 'O death, thou ſhalt be trodden under 'feet; the Son of God ſhall be born into the world, and he ſhall 'bring to men ſalvation; the inviſible world ſhall be made vi-'ſible.' She is repreſented, in painting, &c. as a young woman, in a white veil and golden garment.

SIBYLLA *Samia*, was born at Pluten, in the iſle of Samos, in the Ægean ſea. She is repreſented, in painting, &c. as a woman of a middle age, cloathed in willow weeds, and holding a palm in her hand. She propheſied ſix hundred and ſixty-five years before the birth of Chriſt, and yet propheſied as if ſhe

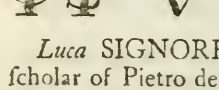
had lived in his days, as follows: 'O ill-adviſed and indiſcreet 'people of Judea, who did not turn to the Lord your God; 'you have not truly known him, but have crowned him with 'thorns, and have given him gall to drink.'

SIBYLLA *Helleſpontica*, was born in the territories of Troy, in a place called Marmiſſa, near the town of Gergitha. She is repreſented, in painting, &c. as a young woman, of a round, lovely, freſh-coloured face, cloathed in green garments, holding in her right hand a pen, and in her left hand a book. Heraclitus Ponticus ſays, that ſhe was cotemporary with Solon, in the reign of Cyrus, about the ſixtieth Olympiad. She propheſied as follows: 'Be comforted, O ye nations, call upon your God; your 'iniquities ſhall be forgiven, and you ſhall find mercy at the 'hands of the Lord.'

SIBYLLA *Tiburtina*, was born in Italy, in a town near Rome, upon the bank of the river Tibur, from whence ſhe took her name. She was repreſented, in painting, &c. as an old woman, of a hard viſage, cloathed in a purple garment, and having in her apron the books of the Sibyls. She propheſied as follows: 'A 'branch ſhall bud from a ſweet root, a flower ſhall ſpring from 'thence, and the ſpirit of the Lord ſhall reſt upon it.'

SIBYLLA *Epirotica*, called alſo Cimmeria; ſhe was ſaid to be born near the Boſphorus; but others ſay, in Cimmeria, a town in Campania in Italy. She is repreſented, in painting, &c. as an old woman of a hard-favoured face, in a grotto, cloathed in garments of purple and dark colours. She is ſaid to have propheſied after the deſtruction of Troy as follows: 'A virgin ſhall 'bring forth a ſon, without the help of a man, and nouriſh him 'with the milk of her breaſts.'

SIBYLLA *Cumana*, was born in Cuma, a town of Campania, in Italy. She lived in the fifty-fifth Olympiad, in the times of Numa Pompilius and Tarquinius Superbus. She was repreſented, in painting, &c. like a grave matron, covered with a veil, and cloathed in robes of a blue colour, hiding her feet. She propheſied as follows: 'After three days he ſhall triumph over death, 'return to the light, and be the firſt who ſhall give evidence to 'the reſurrection, thereby to ſtrengthen the faithful in the hope 'of eternal life.'

 *Cornelius* SICHEN uſed theſe two marks in one hundred and eight plates of the Old Teſtament, in 1569.

Luca SIGNORELLI *da Cortona*, born in the year 1439, ſcholar of Pietro del Borgo, lived at ſeveral places in Italy, excelled in hiſtory-painting; died in the year 1521, aged eighty-two years.

SILK,

SILK, a very ſoft, fine, bright, delicate thread; the work of an inſect, called a Silk-worm.

The ancients were but very little acquainted with the uſe and manufacture of Silk. They took it for the work of a kind of ſpider, or beetle, who ſpun it out of its entrails, and wound it with its feet about the little branches of trees. This inſect they called Ser, from Seres a people in Scythia, who kept it; whence, the Silk itſelf the Latins named Sericum. But the Ser has very little affinity with our Silk-worm, bombyx; the former living five years; but the latter dying yearly, inveloped in a yellowiſh cover or ball, which, being wound out into little threads, makes what is called Silk. The art of manufacturing Silk was firſt invented in the iſle of Cos; Silk was brought to the Romans from Seres, where the worm was a native.

This occaſioned Silk to be a very ſcarce commodity among them for ſeveral ages; it was even ſold weight for weight with gold; inſomuch that, as Vopiſcus informs us, the emperor Aurelian refuſed the empreſs his conſort a ſuit of Silk, merely on account of its dearneſs. At length two monks, coming from the Indies to Conſtantinople in the year 555, brought with them large quantities of Silk-worms, with inſtructions for the hatching of their eggs; alſo rearing and feeding of the worms, drawing out the Silk, and ſpinning and working it. Upon which, manufactures were ſet up at Athens, Thebes, and Corinth.

About the year 1130, a Silk manufacture at Palermo was eſtabliſhed by Roger King of Sicily, as alſo another in Calabria, managed by artificers, who were part of the plunder brought from Athens, Corinth, &c. whereof that prince made a conqueſt in his expedition to the Holy land. And, by degrees, the reſt of Italy and Spain learned from the Calabrians and Sicilians the ordering of the Silk-worms, and working of the Silk: And afterwards the French, by right of neighbourhood, a little before the reign of Francis I, began to imitate them. The great advantage this new manufacture turned to, induced our king James I. to be very earneſt for its being introduced into England. Accordingly it was ſeveral times recommended from the throne, in the moſt earneſt terms, to plant mulberry-trees, &c. for the propagation of Silk-worms; but, unhappily, without effect: Though, from the various experiments found in the Philoſophical Tranſactions, and other pieces, it appears, that the Silk-worm thrives, and works as well, in every reſpect, in England, as in any other part of Europe.

The Silk-worm is an inſect remarkable, both for the precious matter it furniſhes for divers ſtuffs, and alſo on account of the various forms it aſſumes, before as well as after its being inveloped in the rich cod or ball it weaves itſelf. From a grain, or ſeed,

which is its firſt ſtate, it becomes a pretty large worm, of a whitiſh colour, inclining to a yellow. When a worm, it ſhuts itſelf up in its cod, and aſſumes the ſhape of a ſort of greeniſh bean, without any ſigns of life or motion. At length it awakes and becomes a butterfly, after making itſelf a paſſage out of its ſilken ſepulchre: And at laſt, dying indeed, it prepares itſelf by a grain or ſeed it caſts, for a new life, which the warmth of the ſummer aſſiſts it in reſuming.

As ſoon as it is arrived at the ſize and ſtrength neceſſary for the beginning its cod, it makes its web; this is his firſt day's employment: On the ſecond he forms his cod, and covers himſelf almoſt over with Silk: The third day he is quite hid; and the following days employs himſelf in thickening and ſtrengthening his cod; always working from one ſingle end, which he never breaks himſelf; and which is ſo fine, and ſo long, that thoſe who have nicely examined it, affirm, that each cod contains Silk enough to reach the length of ſix Engliſh miles. In ten days time the cod is in its perfection, and is now to be taken down from the branches of the mulberry-tree, where the worms have hung it. But this point requires a deal of care, for there are ſome worms more lazy than others; and it is very dangerous waiting until they make themſelves a paſſage, which uſually happens about the fifteenth day of the month.

The firſt, fineſt, and ſtrongeſt cods or balls, are kept for the grain; the reſt are carefully wound: Or, if it is deſired to keep them all, or if there be more than can be well wound at once, they lay them for ſome time in an oven moderately hot, or elſe expoſe them for ſeveral days ſucceſſively to the greateſt heats of the ſun, in order to kill the maggot; which, without this precaution, would not fail to open itſelf a way to go, and uſe thoſe new wings abroad it has acquired within. Ordinarily they only wind the more perfect cods. Thoſe that are double, or too weak, or too coarſe, are laid aſide; not as altogether uſeleſs, but, being improper for winding, they are reſerved to be drawn out into ſkains. The cods are of different colours; the moſt common are yellow, orange colour, Iſabella, and fleſh colour.

There are ſome alſo of a ſea-green, others of a ſulphur colour, and others white; but there is no neceſſity of ſeparating the colours and ſhades, to wind them apart; as all the colours will be loſt in the ſcouring and preparing of the Silk.

To wind the SILK *from off the cods*, two machines are neceſſary; the one a furnace with its copper; the other a reel, or frame, to draw the Silk. The winder, then ſeated near the furnace, throws, into the copper of water over the furnace, firſt heated and boiled to a certain degree, which cuſtom can only teach, a handful or two of cods, which have been firſt well purged of

all

all their loose furry substance. He then stirs the whole very briskly about with birchen rods, bound and cut like brushes; and when the heat and agitation have detached the ends of the Silks of the pods, which are apt to catch on the rods, he draws them forth, and joining ten or twelve, or even fourteen of them together, he forms them into threads, according to the bigness required to the works they are designed for; eight ends sufficing for ribbons; and velvets, &c. requiring no less than fourteen. The ends, thus joined into two or three threads, are first passed into the holes of three iron rods in the fore-part of the reel; then upon the bobbins, or pullies, and at last are drawn out to the reel itself, and there fastened, each to an end of an arm or branch of the reel. Thus disposed, the workman giving motion to the reel, by turning the handle, guides his threads, substitutes new ones, when any of them break, or any of the cods are wound out; strengthens them where necessary, by adding others; and takes away the cods wound out, or that, having been pierced, are full of water. In this manner two workmen will spin and reel three pounds weight of Silk in a day, which is a greater dispatch than is made by the spinning-wheel or distaff. It is true, all Silks cannot be spun and reeled after this manner; either by reason the cods have been perforated by the Silk-worms themselves, or because they are double, or too weak to bear the water; or because they are coarse, &c. of all these together they make a particular sort of Silk, called Fleuret: Which, being carded, or even spun on the distaff, or the wheel, in the condition it comes from the cod, makes a tolerable good Silk.

As to the cods, after opening them with scissars, and taking out the beans, which are of some use for the feeding of fowl, they are steeped three or four days in troughs, the water whereof is changed every day to prevent their stinking. When they are well softened by this scouring, and cleared of that gummy matter the worm had lined the inside withal, and which renders it impenetrable to the water, and even to air itself; they boil them half an hour in a ley of ashes, very clear, and well-strained; and after washing them out in the river, and drying them in the sun, they card and spin them on the wheel, &c. and thus make another kind of fleuret, somewhat inferior to the former.

To recover the colour of black SILK.—Boil the leaves of a forward summer fig-tree in rain or river water, till a third part of the water is consumed; wash the Silk in this water, and then rinse it or brush it over with a little alum water, and it will be restored to a curious fair black.

To gild SILK.—Lay parchment glue on the Silk gently that it may not sink in; then take cerusse, bole, and verdigrease, of each a like quantity; mix and grind them upon a stone; then, having mixed

mixed a little varnish with it in a glazed earthen vessel, let it simmer over a gentle fire, and keep it for use.

How to stiffen cassa, and the like sorts of SILK, *and give them a beautiful lustre.*—Pound an ounce of gum arabic, and half an ounce of gum tragacanth, very well in a mortar; dissolve them in water; then boil two pounds of linseed in water, so long, till it becomes glutinous; then put in the gum water, make it hot and strain it through a cloth, and, with a sponge, smear it on the wrong side of the Silk, taking care that the piece of Silk be stretched both in length and breadth, otherwise it will be apt to rumple.

To scent or perfume SILKS.—After the Silk has been dyed, for every pound of Silk take an ounce of orris, dry it well. Lay the Silks in rose leaves in a thick sieve, and betwixt every row strew powder of orris, and shut it up close in a box or chest, till the next day, and the Silk will emit an agreeable odour.

How to keep SILK *from staining in the washing.*—Heat rain water very hot, then put into it Castile soap, dissolve it well; then let it stand till it is almost cold, and then sprinkle in a small quantity of fuller's earth; then scour out the Silks; when you have done, clap them between dry cloths, not suffering them to lie on heaps, and they will look fresh and fair.

To restore SILKS *of any colour that have been soiled or greased.*—Take an ounce of unslacked lime, and the like quantity of the ashes of vine-branches, and as much oak-bark; mix them well together in fair water, and make with them a kind of ley, over a gentle fire; let this settle, then take the clear part, and rub over the faded part with a brush or sponge, and it will in a short time restore it.

How to make a soap to take grease, spots, or stains out of SILKS.—Take roch-alum, burn it well and reduce it to a fine powder, and add to it the powder of the roots of Florentine orris, about half a pound; and to these add a new-laid egg, and two pounds and an half of cake-soap; make them up with fair water into round balls; and, when you would take out any spot or stain, first wash the place well with warm water, and then lay a laying of this soap upon it for three or four hours, and then wash it off with other warm water, and, in often so doing, they will disappear.

To take spots and stains out of very thin SILK.—Warm a pint of white-wine vinegar indifferent warm, then dip a black cloth into it, and then rub over the stains; afterwards scrape fuller's earth over them, and clap dry woollen cloths under and over, placing an iron indifferently hot on the upper, and it will draw out the spot, &c.

To take spots or stains out of SILK.—Bruise an ounce of flax-seeds

ſeeds in two or three ſpoonfuls of the juice of lemon, and add a quarter of an ounce of white lead, and the ſame quantity of burnt bone; mix them over a gentle fire to a thickneſs, and lay them on the ſtrainer.

SILVER, is a white metal, and, of all others, except gold, the fineſt, pureſt, moſt ductile, and precious.

There are Silver mines in all the four quarters of the world. Europe has its ſhare; nor is Great-Britain quite deſtitute of them, though it has not any of great value.

The mines of Peru, and ſome other parts of America, are much the richeſt and moſt abundant; they appear almoſt inexhauſtible: Particularly thoſe of Potoſi, which continue to be dug with equal advantage, as when firſt diſcovered; with this only difference, that the veins which were then almoſt in the ſurface of that mountain are now ſunk to prodigious depths; the workmen going to them by a painful deſcent of four or five hundred ſteps.

It is accounted a great addition to the richneſs of a mine to be near a river, for the advantage of the mills to grind the ore.

That which renders the working of the mines exceedingly dangerous, is the exhalations ariſing from them, which are felt even on the outſide, and do affect alſo animals grazing on the outſide in their neighbourhood, but ſtupify the miners in the inſide; none of whom can bear ſo poiſonous an air a day together.

Sometimes it is ſo fatal, that it kills upon the ſpot; and obliges them to ſtop up the veins again, whence it exhales.

The mines of Potoſi are not ſo ſubject to them by far, and, yet, without the herb paraguay, the infuſion of which is taken by the miners, as we do that of tea, thoſe mines muſt be ſoon abandoned.

Though the mines of Potoſi and Lipes ſtill keep up their reputation, yet there have been ſeveral diſcovered within theſe few years, which far exceed them in richneſs; as the mines of Oruro, eighty leagues from Arica; thoſe of Ollachea, near Cuſco, opened in the year 1712.

It is remarkable that moſt of the mines in America are found in cold and barren places.

The method of ſeparating Silver from the ore, in Europe, is the ſame as that of gold, that is, by means of quickſilver; with this difference, that, for Silver, to every fifty hundred weight of ore is added one hundred weight of rock ſalt, or ſome other natural ſalt. See the articles GOLD and REFINING.

Upon this, the ſulphus quits the Silver, and joins itſelf to the iron, and both are converted into ſcoria, which ſwims on the Silver, and the metal itſelf is found pure at the bottom of the crucible.

The

The eſſay of Silver is made by the coppel; if the Silver preſerves its weight, it is ſtandard; if it loſes, the grains, or even pennyweights of its diminution, are accounted.

SILVER *wire*, is Silver drawn through the holes of a wire-drawing iron, and by this means reduced to the fineneſs of a thread or hair. As for the manner of drawing it, ſee under the article WIRE.

SILVER *leaf*, is what the gold-beaters have reduced to fine thin leaves, to be uſed by gilders, &c.

Shell SILVER, is made of the ſhreds of Silver leaves, or the leaves themſelves; uſed in painting and ſilvering certain works: Shell Silver is prepared after the ſame manner as ſhell gold. See GOLD.

To lay on a ground to gild and SILVER *upon.*—Steep two ounces of fine bole armoniac, well choſen, freſh, and greaſy to the touch; put it in water to diſſolve, and afterwards grind it, adding to it the quantity of a filberd of crayon, and of a pea of tallow, which is enough for one grinding; which are to be prepared as follows:

Melt them and put them into freſh water, and work them well with your fingers;

And, as you grind it, put a little ſoap-ſuds among the bole.

When this compound has been ground, put it into fair water, changing the water from time to time to preſerve it.

When this is to be uſed, it is to be tempered with warm ſize; and, if it prove as ſtrong as what you whitened with, put in a third of water, and mix it with the bole, which muſt be made of the thickneſs of a cream; then lay it on the work with a pencil, and go over the whole with it three or four times; letting it lie to dry each time before you go over it again; and, when it is finiſhed and dry, rub it with a ſoft cloth, before you proceed to lay on the gold or Silver.

When this ground is uſed for gold, a little red lead muſt be added to it.

To matt SILVER.—Grind white ceruſe with water, and then temper it with ichthyocolla, or fiſh glue, or elſe glove ſize very fine; the firſt is the moſt beautiful. It muſt be laid with a pencil on the places that you matt.

To SILVER *copper or braſs.* 1. Cleanſe the metal with aqua-fortis, by waſhing it lightly with it, and immediately throwing it into fair water, or by heating it red-hot, and ſcouring it with ſalt and tartar, and fair water with a ſmall wire bruſh.

2. Diſſolve ſome fine Silver in aqua-fortis in a broad-bottomed glaſs veſſel, or of glazed earth; then evaporate away the aqua-fortis over a chafing-diſh of coals.

3. Put five or ſix times its quantity of water, or as much as will

will be neceſſary perfectly to diſſolve it, on the remaining dry calx; evaporate this water with the like heat; then put more freſh water, and evaporate again; and, if need be, the third time; making the fire towards the latter end ſo ſtrong, as to leave the calx perfectly dry; which, if your Silver be good, will be of a pure white.

4. Take of this calx, common ſalt, cryſtals of tartar, of each a like quantity or bulk, but not in weight; mix all well, then put the metal into fair water, and take of the aforeſaid powder with your wet fingers, and rub it well on, till you find every little cavity of the metal ſufficiently ſilvered over.

5. If you would have it richly done, you muſt rub on more of the powder; and in the laſt place waſh the ſilvered metal in fair water, and rub it hard with a dry cloth.

This, though done without quickſilver, may laſt ſome years; and, when the Silver begins to wear off, may as eaſily be renewed.

To counterfeit SILVER. Take cryſtal arſenic eight ounces, tartar ſix ounces, ſaltpetre two ounces, glaſs one ounce and an half, and of ſublimate half an ounce; reduce them ſeparately into a fine powder, and mix them; then take three pounds of copper in thin plates, and put them into a crucible, with the former ingredients, layer upon layer, to calcine, covering it, and luting it ſtrongly; ſet it in the furnace, and there let it ſtand for eight or ten hours; then take it out, and when it is cold break the pot, and take out all the matter, and melt it with a violent fire, caſting it into a mould.

Then take purged braſs two pounds, of the former metal one pound; melt them together, caſting in now and then ſome of the aforeſaid powder; after which, add as much of fine Silver, melting them together, and you have what you deſired.

Laſtly, to make it as white as Silver, boil it in tartar.

Another way to counterfeit SILVER. Take of purified tin eight ounces, quickſilver half an ounce; and, when it begins to riſe in the heat, caſt into it powder of cantharides with a lock of hair, that it may burn in it; and, being melted, put into it the aforeſaid powder, then take it ſuddenly from the fire, and let it cool.

To whiten SILVER. Silver veſſels, or inſtruments boiled with ſalt, alum, and tartar, give them that whiteneſs and clearneſs, which they would ſcarcely be brought to by bruſhing, pumice-ſtone, or putty; old ſullied pieces may be brought in a trice to the like fairneſs by warm aqua-fortis.

To prepare the SILVER *dye.* Allow half a pound of alum for every fifteen yards of ſtuff, and three quarters of fœnugreek; let them boil for half an hour, then add one pound of pot-aſhes, and half a pound of braſil, in which boil the ſtuffs for a quarter of an hour.

To ſoften SILVER. Put as many wedges, as you have melted one night, into a crucible, and ſet it into a furnace, but ſo as they may not melt, and they will be ſoft and fair.

Or thus: Take honey and oil, of each a like quantity; quench Silver or gold in it three or four times, and it will be ſofter.

To tinge SILVER *of a gold colour.* Take fine gold, fine Silver, good braſs, or braſs and copper calcined with ſulphur vivum, of each a like quantity; melt them down together, and it ſhall appear to be gold of eighteen carats fine.

Another way to tinge SILVER. Take of quickſilver an ounce and a half, of leaf gold half an ounce; mix them, and put them into a glaſs retort well luted; ſet it on the fire till it grow hot; then take it off, and add to it quickſilver purged one ounce, ſal armoniac half an ounce, ſal ellebrot a quarter of an ounce, borax one drachm; then ſeal up the glaſs hermetically, and ſet it into a continual fire for three days; then take it out, and let it cool, open the retort, take out the matter, and powder it very fine; of which powder mix one ounce with five ounces of Silver, and it will tinge it into a good gold colour.

The ſal ellebrot is made as follows: Take pure common ſalt, ſal gemmæ, and ſal alcali in powder, of each half an ounce; juice of mint two ounces, ſpring water two pounds; mingle them and evaporate.

Quickſilver is purged by waſhing it in ſharp vinegar three or four times, and ſtraining it through a ſhammy leather, or by ſubliming it, which is better.

To bring SILVER *into a calx.* This is done by making it into an amalgama with quickſilver, and then ſubliming it; or by diſſolving it in aqua-fortis, and precipitating it with the ſolution of ſalts in fair water, and then waſhing it often with fair water to free it from the ſalts; or elſe by mingling the filings with ſublimed mercury, and afterwards cauſing the mercury to aſcend in a retort, which will leave at bottom the calx of Silver fit for jewels, &c.

To blanch SILVER. Take ſal armoniac, roch alum, alum plumoſum, ſal gem, argol, Roman vitriol, of each a like quantity; powder them, mix them, and diſſolve them in fair water; in this boil the Silver ſo long, till you find it of an excellent whiteneſs.

To SILVER *any metal.* Diſſolve fine Silver in ſtrong aqua-fortis; put to it ſo much tartar in fine powder, as will make it into a paſte; rub the metal with it, and it will look like fine Silver.

SIN, is repreſented, in painting, &c. by a youth blind, black and ſtark naked, who ſeems to walk through crooked ways, and by precipices, girt round with a ſerpent gnawing his heart.

His youth denotes his imprudence and blindneſs, in committing Sin; his wandering ſhews his deviating from, and tranſgreſſing the law; black and naked ſhews, that Sin deprived men of grace, and the whiteneſs of virtue; the ſerpent is the devil continually ſeeking to delude with falſe appearances.

SINCERITY, is repreſented, in painting, &c. by a young woman in a thin golden robe; ſhe holds a human heart in her left hand, in her right a white dove; both ſignify, that true Sincerity is incapable of hypocriſy, her integrity makes her fear nothing, ſhe makes her actions manifeſt by diſcloſing her heart to all people.

To make iſing-glaſs SIZE. Take fine iſing-glaſs in ſmall bits one ounce, fair water a quart; let it ſtand for twelve hours only warm, and afterwards boil it, but very gently, and continue the ſimmering till it is all diſſolved; the water alſo being waſted away to a pint or leſs, let it cool and keep it for uſe.

It will be thick like a jelly, but will not keep above three or four days, ſo that you ought to make no more at once, than preſent occaſion requires.

To make gold SIZE. Take gum animi, aſphaltum, of each one ounce; minium, litharge of gold, and umber, of each half an ounce; reduce all into a very fine powder, and add to them of linſeed oil four ounces, of drying oil eight ounces; digeſt over a gentle fire, that does not flame, ſo as it may only ſimmer and bubble up, but not boil, for fear it ſhould run over and ſet the houſe on fire; keep it conſtantly ſtirring with a ſtick, till all the ingredients are diſſolved and incorporated; and do not leave off ſtirring it, till it becomes thick and ropy, and is boiled enough; let it ſtand till it is almoſt cold, and then ſtrain it through a coarſe linen cloth, and keep it for uſe.

To prepare it for working. Put according to the quantity you ſhall uſe in a horſe muſcle ſhell, and ſo much oil of turpentine to it, as ſhall diſſolve it, making it as thin as the bottom of your ſeed lac varniſh; hold it over a candle to melt, and then ſtrain it through a linen rag into another ſhell; add to theſe ſo much vermilion as will make it of a darkiſh red.

If now it is too thick for drawing, you muſt thin it with oil of turpentine. The chief uſe of this Size is for laying on of metals.

The beſt gold SIZE *for burniſhing.* Take fine bole what quantity you pleaſe, grind it finely on a marble, then ſcrape into it a little fine beef ſuet, grind all well together; after which mix a ſmall proportion of parchment Size, with a double proportion of water, and it is done.

To make ſilver SIZE. Grind tobacco-pipe clay fine, ſcrape into

into it a little deer's ſuet, and grind them all extremely fine; then add a mixture of Size and water, as before directed.

A SIZE *for either ſilver or gold.* Take fine bole in fine powder one pound, black lead two ounces, grind them together; then add of oil olives two ſcruples, and bees-wax one ſcruple, melted together; grind all theſe very finely in a maſs; and, in the laſt place, grind them together with parchment Size and water.—But remember never to grind more gold and ſilver Size at a time than will ſerve the preſent occaſion.

To make parchment SIZE. Boil cuttings of clean parchment one pound in two quarts of fair water to a jelly; ſtrain it hot, then let it cool, and it will be a ſtrong Size.—This may be uſed, as well as for the former uſes, in white japan work inſtead of iſing-glaſs Size.

The way of uſing this SIZE. Melt ſome of it over a gentle fire, and ſcrape into it as much whiting, as may only colour it; mix and incorporate them well together with a clean pencil; with this you may whiten frames, rubbing it well in with your bruſh, that it may enter into every hollow place of the carved work, &c. letting it dry on.

Then melt the Size again, and put in more whiting, ſo as to make it ſomewhat thick, and whiten the frames over again ſeven or eight times, letting it be thoroughly dry between each time: but after the laſt going over, before it is quite dry, you muſt dip a clean bruſh pencil in fair water, to wet and ſmooth it over; and, when it is thoroughly dry, bruſh it over, as the neceſſity of the work ſhall require.

After this, with a googe or chiſſel, not half a quarter of an inch broad, open the veins of the carved work, which the whiting has choaked up; then ſmooth and water-plane it all over with a fine rag wetted, and your finger; let it be dry, and then it is fit to receive the former gold Size.

To make gold SIZE *in oil.* Take yellow oker in fine powder, what quantity you pleaſe; mix it with an indifferent fat linſeed oil a ſufficient quantity, grind them well together, and put the maſs into a gallipot, upon which put ſome fat oil, to keep it from ſkinning over; cover it cloſe with a piece of bladder or paper, and keep it for uſe.

It will keep good for ten or twelve years, and be the better, and not the worſe.

If you would have your work extraordinary well done, prime it over thinly twice, and let it ſtand to dry for four or five days.

To make glove-leather SIZE. Take half a pound of the cuttings of white gloves, and put them in water, letting them ſteep for ſome time; then boil them in a pot with ſix quarts of water, till it

it be conſumed to one; then ſtrain it through a cloth in a new earthen pan.

To try whether the Size is ſtrong enough, when it has ſtood till it is cold, feel it with your finger, and, if it feels firm under your hand, it is done.

To colour SKINS *a light blue or turky colour.* Take ſmalt four ounces, red wine half a pint, and alum four ounces, vinegar a pint, and white ſtarch an ounce; ſet them over a gentle fire, but do not ſuffer them to be over thick; ſoak the Skins in alum water, and hang them up to dry; add to this colouring a pint of gum water, tolerably thick; lay it on when dry, glaze it over, and poliſh it.

To dye SKINS *a crimſon colour.* Take hard ſoap, ſcrape three ounces, and diſſolve it in fair water, and add to it three ounces of alum; boil them over a gentle fire, till the water grow clammy, or a little inclining to thickiſh; then put in a few grains of cochineal, half an ounce of lake, two ounces of red lead, and a quarter of an ounce of vermilion, and a ſmall piece of indigo; mix them well by ſtirring them together, and keep them upon a gentle fire, till they are about the thickneſs of the white of an egg; then having firſt rubbed the Skin over with alum water, and hung it up to dry, apply this colour as is directed for others.

Another fair red for SKINS. Firſt wet the Skins or pults in alum water, in which a like quantity of ſalt, with half as much lime, has been diſſolved; then ſtretch them, and dry them, take a quart of the laſt brewer's drink, and put into it an ounce of braſil powder or raſpings, a quarter of an ounce of vermilion, and an ounce of alum powder; thicken them over a gentle fire by continual ſtirring, and ſo with a bruſh or cloth rub over the Skins evenly, not laying it thicker in one place than another; and this do three times ſucceſſively, ſuffering them only to dry the mean while; and, being thus done, they will be according to your expectation.

To colour SKINS *green.* Take the leaves of nightſhade, bruiſe them in a mortar, ſtrain out the juice, and diſſolve in each pint two ounces of alum, to which add half an ounce of verdigreaſe, and heat them gently over the fire; then let it ſtand for twenty-four hours, and ſtrike over the Skins with a bruſh with it warm; let them dry and go over them again, till they have taken a lively colour.

To colour SKINS *a light green.* Take the herb called horſe-tail, bruiſe it, and add to the juice a ſmall quantity of verdigreaſe, alum, and copperas; make it into a colour over a gentle fire, and it will prove a pleaſant colour.

SLEEP, is called the brother of death, was painted of a moſt ſour, lowring, and melancholy aſpect, aged, and holding in her

right hand a young child very beautiful, and in her left another child, of a moſt ſwarthy, black, and dull complexion, with legs and arms very crooked.

Philoſtratus, in a tablet he made for Amphiarus, repreſents her as an aged woman, ſlothful and ſluggiſh, cloathed with ſeveral garments, the undermoſt of which is black, and the upper one white, holding in one of her hands a horn pouring forth ſeeds.—By the garment is ſignified night and day; by the ſeed, reſt, eaſe, and quiet.

Gaſpars SMITZ, *alias Magdalen* SMITH, was a Dutch painter, who came over to England about ſeventy years ago. He practiſed ſome time in London, but, upon the encouragement of a lady of quality, he went over to Ireland, where he gained the greateſt eſteem, and had very large prices for his work; he painted portraits in oil of a ſmall ſize; but his inclination led him moſt to Magdalens, from whence he had his name.

Theſe Magdalens were very gracefully diſpoſed, beautifully coloured, expreſſing the character of grief and penitence. He had alſo a particular talent for painting fruit and flowers, inſomuch that one bunch of grapes of his performance was ſold in Ireland for forty pounds. He ſeldom failed to introduce a thiſtle into the fore ground of his Magdalens, which he painted after nature with wonderful neatneſs; he died in Dublin.

SMOKE, in painting in miniature, is imitated with black indigo and white, and ſometimes with biſtre. You may alſo add vermilion or oker, according to what colour you would have it.

The SNOW-DROP. Cover and finiſh as for the lilly, do the ſeed with maſticote, and ſhade with gall-ſtone; let the green be verditer and iris.

Dying of SNUFF *colours*. Take water a ſufficient quantity, nut-galls in powder one pound, madder four ounces and a half, red wood ground one pound, fuſtic four ounces; make them boil, and enter twenty yards of broad cloth, handle it, and boil two hours, and cool; add copperas four ounces, enter your cloth, and handle it, and boil it a quarter of an hour, and cool it; if you would have it ſadder, uſe the more copperas.

In making a light Snuff colour, you muſt put in the leſs copperas; if you would have it to look greeniſh, you muſt uſe the more fuſtic; but, if you would have it look more red, uſe the more red wood.

Another SNUFF *colour*. Take water q. ſ. fuſtic two pounds, madder one pound, red wood ground half a pound; let them boil, and then enter twenty yards of broad cloth; handle it and let it boil two hours, and cool it; add copperas four ounces, which is enough

enough for the lighter colour; then enter your cloth, handle it, boil half an hour, and then take it out and cool it.

Francis SNYDERS, born in 1579, ſcholar of Henry van Balen, lived at Antwerp and in Italy, excelled in painting wild beaſts, hunting, fiſh, fruit, &c.

SOAP, is a ſort of paſte ſometimes hard and dry, and ſometimes ſoft and liquid, much uſed in waſhing and whitening linens; and alſo by dyers, fullers, and many other workmen.

The principal Soaps of our Engliſh manufacture are the ſoft, the hard, and the ball Soap; the ſoft Soap again is either green or white; the proceſs of making each kind is as follows:

The green ſoft Soap; the principal ingredients uſed in making green Soap, are leys drawn from pot-aſhes, and lime boiled up with tallow and oil.

Firſt the ley and tallow are put into the copper together, and, when melted, the oil is put to them, and the copper made to boil; then they damp or ſtop up the fire, while the ingredients remain in the copper to knit or incorporate; which being done, they ſet the copper a boiling again, feeding or filling it with leys as it boils, till they have put in a ſufficient quantity; after which they boil it off with all convenient ſpeed, and put it into barrels.

White Soap; of this one ſort is made after the manner that green ſoap is, excepting that they do not uſe any oil in this.

Another ſort of white ſoft Soap is made from leys of aſhes of lime, boiled up at twice with tallow.

Firſt they put a quantity of leys and tallow into the copper together, which is kept boiling, being fed with leys as it boils, till it is boiled enough, or that they find it grains; then they ſeparate or diſcharge the leys from the tallowiſh part, which they put into a tub, throwing away the ley; this they call the firſt half-boil.

Then they charge the copper again with freſh tallow and ley, and put the firſt half-boil out of the tube into the copper a ſecond time, and keep it boiling with freſh ley and tallow, till it is brought to perfection, and afterwards filled out into Soap-caſks.

Hard Soap is made of aſhes and tallow, and commonly boiled at twice; the firſt boiling they alſo call a half-boiling, which is performed exactly after the ſame manner as the firſt half-boil of the ſoft white Soap.

Then they charge the copper again with freſh ley, and put into it the firſt half-boil again, feeding it with ley, as it boils, till it is boiled enough, or till it grains; then they diſcharge the ley from it, and put the Soap into a frame to boil and harden.

Ball Soap is made alſo of ley from aſhes and tallow; they put the ley into the copper, and boil it till the watery part is quite gone, and there is nothing left in the copper but a ſort of nitrous

matter, which is the very ſtrength and eſſence of the ley; then they put tallow to it, and keep the copper boiling and ſtirring for half an hour or more, in which time the Soap is compleated, which they put into tubs or baſkets with ſheets in them, and immediately, while ſoft, make it into balls.

It takes up near twenty-four hours to boil away the watery part of the ley.

SODA, which comes from Egypt and Spain, derives its name from the abundance of ſalt it contains; it is made of the ſame herb as the polverine and rochetta of the Levant, and is of the ſame ſort and nature with that; and though this herb grows in great quantities in many places, and comes naturally among water, and commonly flouriſhes near lakes, yet it is planted on the banks of the Mediterranean in France, Spain, and in Egypt, where by reaſon of the heat of the climate it grows in great quantities, but it has the moſt ſharpneſs and is ſtrongeſt in Egypt, where there is never any rain.

It is green all the winter; but they commonly cut it in the middle of the ſummer, when it is in its full vigour; after it has been dried by the heat of the ſun, they gather it on heaps, and burn it on hurdles or grates made of iron; the aſhes falling through into a pit, made underneath on purpoſe, there they grow into a hard maſs or ſtone, and are gathered and laid up for uſe, and are called Soda, and their ſalt alcali, and are uſed for making glaſs and cryſtal. See ROCHETTA, POLVERINE, and CRYSTAL.

SOFTENING, in painting, is the mixing and diluting of colours with the bruſh or pencil.

Painters often uſe the term, Soften deſigns in black and white made with the pen, &c. to weaken the teint. To Soften a pourtrait, according to Felibien, is to change ſome of the ſtrokes, and give a greater degree of ſweetneſs and ſoftneſs to the air thereof, which before had ſomething rough and harſh in it.

SOLDER, } is a metallic or mineral compoſition, uſed in ſol-
SODDER, } dering or joining other metals.

Solders are made of gold, ſilver, copper, tin, glaſs of tin, and lead; always obſerving, that, in the compoſitions, there be ſome of the metal that is to be ſoldered, mixed with ſome finer and higher metals.

Goldſmiths make four kinds of Solder, viz. Solder of eight; where to ſeven parts of ſilver there is one of braſs or copper. Solder of ſix, where only a ſixth part is copper; Solder of four, and Solder of three. It is the mixture of copper in Solder that makes raiſed plate always come cheaper than flat.

The Solder uſed by plumbers is made of two pounds of lead to one of tin. Its goodneſs is tried by melting it, and pouring

the bigneſs of a crown-piece upon a table; for, if good, there will ariſe little bright ſhining ſtars in it.

The Solder for copper is made like that of the plumbers, only with copper and tin; for very nice works, inſtead of tin, they ſometimes uſe a quantity of ſilver.

Solder for tin is made of two thirds of tin, and one of lead; but where the work is any thing delicate, as in organ-pipes, where the juncture is ſcarce diſcernible, it is made of one part of tin or glaſs, and three parts of pewter.

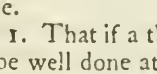
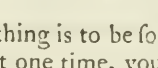
To SOLDER *upon ſilver, braſs, or iron.* Beat the Solder thin, and lay it over the place to be ſoldered, which muſt be firſt fitted and bound together with wire, as occaſion requires; then take borax in powder, and temper it like pap, and lay it upon the Solder, letting it dry; then cover it with quick coals and blow, and it will run immediately; take it preſently out of the fire, and it is done.

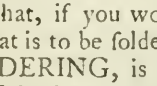
Note 1. That if a thing is to be ſoldered in two places, which cannot be well done at one time, you muſt firſt Solder with the hard Solder, and then with the ſoft; for, if it be firſt done with the ſoft, it will unſolder again before the other is ſoldered.

2. That, if you would not have your Solder run about the piece that is to be ſoldered, rub thoſe places over with chalk.

SOLDERING, is the joining or faſtening together of two pieces of the ſame metal, or of two different metals, by melting and applying ſome metallic compoſition on the extremities of the metals to be joined.

In the Soldering either of gold, ſilver, copper, &c. there is generally uſed borax in powder, and ſometimes roſin.

 or  *Virgilio* SOLE, engraved a great many pieces in copper and wood in Hisbin's taſte. He engraved the New and Old Teſtament in two hundred plates, the Metamorphoſis of Ovid in one hundred and ſeventy ſmall plates, hunting-pieces in great and ſmall, &c. He ſometimes made the letter V on one ſide of the plate, and S on the other.

 *Virgilio* SOLE of Bruſſels, his mark under a dead Chriſt, engraven on a large plate in 1542.

SOOT, is an earthy, volatile matter, ariſing from wood, coal, and other fuel, along with the ſmoke, by the action of fire; or it is rather the ſmoke itſelf, fixed and gathered on the ſides of the chimney.

Dyers make conſiderable uſe of Soot, for a kind of dun colour, which it is true has no agreeable ſmell; but then, to anſwer to that, has the property of ſaving cloths and other ſtuffs from

moths.—The Soot found in the furnaces of glaſs-houſes is uſed by painters.

Soot *of frankincenſe*, the ſmalleſt and fineſt part of the incenſe, called olibanum or male incenſe; burnt after the manner of roſin to make lamp-black.

SORROW, SADNESS, GRIEF, DEJECTION, } is an unpleaſant faintneſs, by which the ſoul receives the inconveniencies of the evil, or of the defect repreſented to it by the impreſſions of the brain.

This paſſion is repreſented, in drawing, painting, &c. by motions which ſeem to indicate the inquietude of the brain, and the dejection of the heart; the eye-brows being more raiſed in the middle of the forehead than next the temples.

They who are troubled with this paſſion have their eye-balls dull, the white of their eye inclining to yellow, the eye-lids hanging down, and ſomething ſwelled; black and livid round the eyes, the noſtrils drawing downwards, the mouth open and the corners thereof drawn down; the head appears careleſly hanging on one of the ſhoulders, the complexion of a kind of lead colour, and the lips pale and wan. See plate XVI.

SOUTH, is repreſented, in painting, by a blackmoor boy, a ſun upon his head, ſurrounding him with its rays; upon his girdle are the ſigns Taurus, Virgo, and Capricornus; arrows in his right hand, in his left a branch of the lotus.—The zone wherewith he is girded denotes the meridional ſigns; the arrows, the ſun's penetrating into the very bowels of the earth; the lotus, at the ſun's beginning to appear, appears out of the water, and, according as the ſun aſcends, ſo does it; at noon it ſtands upright, and ſo in the afternoon it follows the ſun, till it enters into the water again.

SPECTACLES, an optic machine, conſiſting of two lens's, ſet in horn or other matter, and applied on the noſe, to aſſiſt in defects of the organs of ſight. See LENS.

Old people, and all preſbytæ, uſe Spectacles of convex lens's, to make amends for the flatneſs of the eye, which does not make the rays converge enough to have them meet in the retina.

Short-ſighted people, or myopes, uſe concave lens's, to hinder the rays from converging ſo faſt through the great roundneſs of the eye, as to make them meet before they reach the retina.

Spectacles were certainly unknown to the ancients; yet they are not of ſo late a date as the teleſcope. Franciſco Redi, in a very learned treatiſe on Spectacles, will have them to have been invented in the thirteenth century, between the years 1280 and 1311.

SPELTER, or Zink, a ſort of imperfect metal, which ſome confound

confound with bismuth, and others with spalt; others again make it a female antimony. See ZINK.

Spelter is a kind of mineral lead, very hard, white, and brilliant, which, though not perfectly malleable, yet stretches a little under the hammer.

It is found in greatest quantity in the mines of Goslelar in Saxony, and is usually sold in large, square, thick cakes, whence one would judge it to have been melted as it came out of the mines, and cast into that form.

It is used to clear and whiten tin, in making of pewter, much as lead is used to purify gold and silver.

Those who imagine that the Spelter is put in to increase the weight, are much mistaken; since, in the melting five or six hundred weight of tin, they scarce put in a pound of Spelter, and that mixed with turmeric. It is also used in the making of solder, and with curcuma in the melting of copper, to give that metal a good colour, which however is not permanent. See SOLDER. The best is white, in fine scales, difficult to break, &c.

S. P. F. signifies Stephen du Perach fecit.

SPIDER *silk*. In the year 1710, Mr. Bon published a dissertation, in France, concerning the procuring and preparing silk of the webs of Spiders, and using it in several manufactures, which is to the following effect:

The silk Spiders make a silk every whit as beautiful, strong, and shining as that made by the silkworm; it spins it out of the anus, around which are five papillæ, or small nipples; and, behind these, two others, all musculous, and furnished with sphincters.

These nipples serve as so many wire-drawing irons, in forming and moulding a liquor, which, when dried in the air, after it has been drawn through them, is to be the silk.

Mr. Reaumur observes, that each of these nipples consists of a number of lesser and insensible ones, which a person may be convinced of, by pressing a Spider's belly between his fingers, to force the liquor to flow into the nipples; for, by this means, applying the finger against the anus, several distinct threads will be drawn out through the several perforations of the nipples.

The threads indeed are too fine to be told with any certainty; but Mr. Reaumur supposes, that each larger nipple may send forth six or seven; hence it is, we find how the Spiders make threads bigger or smaller; for as, before they begin to spin, they always apply either more or fewer of these six nipples against the body, whence the web is begun; or, as they apply each more or less strongly, so as more or fewer of the insensible nipples come to

take; the thread thus ſpun will be a compound of more or fewer of the ſingle threads.

Indeed, as the threads come from the anus all joined together, they appear to be ſingle, and Mr. Bon has diſtinguiſhed one of the ſingle ones to conſiſt of fifteen or twenty diſtinct threads.

The threads are of two kinds; the firſt is weak, and only ſerves for that kind of web wherewith they catch flies. The ſecond is much ſtronger, and ſerves for wrapping up their eggs in, which, by means of it, are not only ſheltered from the cold, but defended from inſects, which might otherwiſe gnaw and ſpoil them.

Theſe threads they wind very looſely about the eggs, and bear a reſemblance to the cods and bags of ſilkworms, that have been prepared and looſened from the diſtaff.

Theſe Spiders bags, when freſh and new, are of a grey colour; but, having been long expoſed to the air, turn blackiſh. There might indeed be found other Spiders bags, of other colours, and which would afford a better ſilk; but their ſcarcity would render the experiment very difficult.

There are indeed Spiders of ſeveral colours, as black, brown, yellow, white, &c. and they are again diſtinguiſhed as to the number of their eyes, ſome having ſix, others eight, others ten: But, as to the ſilk Spider itſelf, they are, by Mr. Bon, all reduced to two kinds; thoſe which have long legs, and thoſe that have ſhort; of which the ſhort-legged are moſt common, and thoſe that furniſh the raw ſilk.

Theſe always find out ſome place, ſecure from the wind and rain, in which to make their bags; as hollow trees, the corners of windows or vaults, or under the eaves of houſes.

By collecting a quantity of theſe bags, a new ſilk may be made in nothing, he tells us, inferior to the common ſilk: It will take all kinds of dyes, and may be wrought into any kinds of ſtuffs.

Mr. Bon had ſtockings and gloves made of it, which he preſented to the Academy, and others of the Royal Society.

After he had gathered twelve or thirteen ounces of theſe bags, he had them well beaten for ſome time with the hand and a ſtick, to get out all the duſt; he after this waſhed them in lukewarm water, till they, being taken out of the water, left it very clean; after this they were laid to ſteep in a large veſſel, with ſoap, ſalt-petre, and gum arabic.

This, with the bags in it, was ſet over a gentle fire, and gently boiled for three hours; then taken out, and waſhed in warm water to get out the ſoap, and afterwards laid by to dry for ſome days, to fit them for carding, which was done by the common carders of ſilk, but with cards much finer than ordinary.

By this management he procured a ſilk of a very particular aſh-colour,

aſh-colour, which was very eaſily ſpun, and the thread ſpun from it both ſtronger and finer than that of common ſilk; by which it is evident, that all manner of work may be made of it; nor is there any reaſon to fear, but that it will ſtand any trials of the loom, after having undergone, or paſſed through, that of the ſtocking-weavers.

The only difficulty is in procuring a quantity of Spiders bags, in order to carry on a conſiderable manufacture in it.

But this, Mr. Bon ſays, would be no difficulty at all, if we had but the art of breeding them as they do ſilkworms; for they multiply much more, every Spider laying ſix or ſeven hundred eggs, whereas the ſilkworm does not lay above an hundred; and yet theſe laſt are ſo tender, &c. that one half die without making any bags, or are hindered by ſome accident or other from making bags; whereas the Spiders hatch of themſelves, without any care, in the months of Auguſt and September, in fifteen or ſixteen days after they are laid; the old Spiders that lay them dying ſoon after.

The young ones, thus bred, live ten or twelve months without eating, and continue in the bags without growing, till the hot weather, putting their viſcid juices in motion, forces them to come forth, ſpin, and run about to ſeek for food.

Were there therefore a way found for breeding young Spiders in rooms, they would without doubt furniſh a much greater quantity of bags than ſilkworms do.

For, of ſeven or eight hundred young Spiders which Mr. Bon kept, ſcarce one died in a year; whereas, of one hundred ſilkworms, not forty lived to make their bags.

Mr. Bon having ordered all the ſhort-legged Spiders that could be found, in the months of Auguſt and September, to be brought to him, he ſhut them up in paper coffins and pots, covering the pots with papers, which he pricked full of pin-holes, as well as the coffins, to give them air. He fed them with flies, and found ſome time after that the greateſt part of them had made their bags.

He alſo found, that Spiders bags, in reſpect to their weight, afforded much more ſilk than thoſe of the ſilkworms.

As a proof of this, he ſays, that thirteen ounces yield near four ounces of clear ſilk, two ounces of which will make a pair of ſtockings; whereas ſtockings of common ſilk weigh ſeven or eight ounces; nor is there any venom in the ſilk, nor even in the Spider, as ſome have imagined.

Mr. Reaumur, being appointed by the Royal Academy to make a further examination into this new ſilk work, raiſed ſeveral objections, and ſtarted ſeveral difficulties againſt it, which are to the purpoſe following:

1. That

1. That the natural fierceneſs of Spiders renders them unfit to be bred and kept together; four or five thouſand being diſtributed into cells, fifty in ſome, one hundred or two hundred into others, the big ones killed and eat the leſs, ſo that in a ſhort time there were ſcarce one or two left in a cell; and Mr. Reaumur aſcribes the ſcarcity of Spiders to this inclination of eating one another, conſidering the vaſt number of eggs they lay.

He alſo affirms, that the Spiders bag is inferior to that of the ſilkworm, both as to luſtre and ſtrength, and that it produces leſs matter to be manufactured.

That the thread of the Spiders web will bear no more than the weight of two grains without breaking; that of the bag will bear thirty-ſix. Therefore the latter in all probability is eighteen times thicker than the former; yet it is weaker than that of the ſilkworm, which will bear a weight of two drachms and a half.

So that five threads of the Spider's bag muſt be put together, to equal one thread of the ſilkworm's bag.

And beſides, he adds, that it is impoſſible theſe ſhould be applied ſo juſtly over one another, as not to leave little vacant ſpaces between them, whence the light will not be reflected; and conſequently a thread, thus compounded, muſt fall ſhort of the luſtre of a ſolid thread.

And to this he adds, that the Spider's thread cannot be wound off, as that of the ſilkworm may, but muſt of neceſſity be carded; by which means being torn in pieces, its evenneſs, which contributes much to its luſtre, will be deſtroyed.

Again he obſerves, that Spiders furniſh much leſs ſilk than ſilkworms. The largeſt bags of the latter weigh four grains; the ſmaller three grains, ſo that 2304 worms do produce a pound of ſilk.

The Spiders bags do not weigh above one grain; yet, when cleared of their duſt and filth, loſe two thirds of their weight. Therefore the work of twelve Spiders does but equal that of one ſilkworm.

And beſides, as the bags are the works of the females only, who ſpin them to depoſit their eggs in, there muſt be kept 55,296 Spiders to yield a pound of ſilk. Yet this will only hold of the beſt Spiders; thoſe large ones, commonly ſeen in gardens, &c. ſcarce yielding a twelfth part of the ſilk of the others; he ſhews, that 280 of theſe would not do more than one ſilkworm, and 663,552 of them would ſcarce yield a pound of ſilk.

To take out SPOTS *of greaſe.* Rub them very well two or three times with oil of turpentine, and they will vaniſh away inconceivably; and then waſh again with rectified ſpirits of wine.

To take out SPOTS *of oil or greaſe out of white or red ſilk.* Rub the Spots well with diluted aqua-fortis, and afterwards with the glair

glair of new laid eggs; hang it in the ſun to dry, and afterwards waſh it with fair water, and preſs it well.

To take out SPOTS *of pitch or tar.* Firſt rub them well with hog's lard, or old thick oil, and repeat this two or three times; then ſoap them and waſh them with fair water.—Spirit of wine is alſo good in this caſe.

To take SPOTS *of pitch, tar, &c. out of cloth.* Rub either common oil, or hog's lard, well into the Spots, and let it lie for twenty-four or forty-eight hours; then rub it well with your hands, and wring it, and laſtly waſh it clean with ſoap and water.

A powder to take out SPOTS. Take bone aſhes of ſheeps legs calcined white, reduce them to a fine powder; lay this warm upon Spots or ſtains, till it begins to change colour; then take off that, and lay on freſh, and continue ſo doing till the Spot is gone.

To take out SPOTS *of ink.* Waſh them three or four times with juice of lemon, or with ſtrong white wine vinegar, and it will take them out; afterwards waſh them with Genoa ſoap, and laſtly with fair warm water.

To take SPOTS *of ink out of ſilk.* Take ſtrong white wine vinegar and hot aſhes, rub them well upon the Spots, and afterwards waſh with ſoap and water, and the work will be done.

SPRING, is repreſented, in painting, &c. by a young man of an exact ſtature, cloathed on one ſide in white, on the other in black; a pretty broad girdle, ſet with ſtars, holds a ram under his arm, and a garland of ſeveral flowers in his left hand, two wings on his feet, one white and the other black.—Youth denotes the Spring and beginning of the year; juſt ſtature, becauſe it is the equator, equal day and night; black and white, day and night; the girdle the equinoctial line; the ram, the ſun's entrance into that ſign; the wings, the ſwiftneſs of time.

A SPY, is repreſented, in painting, &c. by a man in a noble habit, hides moſt of his face with his hat, his cloaths woven with eyes, ears, and tongues, a lanthorn in one hand, his feet winged, a ſpaniel by him on the ground, his noſe in full ſcent after his game.—His cloaths ſhew, that he practiſes amongſt noblemen as well as vulgar; his face, that he ought to paſs incognito, never diſcovering their deſigns; the eyes, &c. are the inſtruments they uſe to pleaſe the patrons; the lanthorn, that they Spy night and day; the dog, their ſmelling out mens actions, and their inquiſitiveneſs.

STAINING *liquors.*

A light STAINING *green.* Take a quart of malt wort, put into it two ſhells full of florey, and ſtir them well together; firſt ſtain with this, then upon this Staining lay yellow, till it becomes green; the more you lay on of your yellow Staining liquor, the better the green will be.

To

To make a fine blue STAINING *water.* Firſt make a weak lixivium of pot-aſhes, or uſe lime-water; put into it a ſufficient quantity of florey, and a little alum; let it diſſolve over the fire, keeping ſtirring it, and put into it ſome wood aſhes, and ſo you will have a fine blue.

A weaker blue STAINING *water.* Diſſolve a good quantity of florey blue, and a little alum, in a ſufficient quantity of fair water; and this will make a fainter colour than the former.

A blue STAINING *water weaker than the laſt.* To two quarts of pure well-water put four ſhells full of florey; mix them well together, and lay them on thin, and this will be the fainteſt of the three.

STARCH, is a dreg or ſediment found at the bottom of veſſels, in which the waſte or refuſe of wheat has been ſteeped in water; of theſe dregs or ſediment, after the bran has been ſeparated from it, a ſort of loaves are formed, which, being dried in a furnace or the ſun, is broken into little pieces, and is the ſubſtance called Starch.

The beſt Starch is white, ſoft, and friable, eaſily reduced into powder.

But the fineſt Starch, made by thoſe that are curious, is not made, as the common Starch-makers do it, of the refuſe of wheat, but with the beſt and fineſt of that grain, and is made as follows:

Having cleanſed the beſt and fineſt wheat well, they put it into veſſels of clear water to ferment, and expoſe them to the ſun in its greateſt heat; and change the water twice a day, for eight, ten, or twelve days, according as the ſeaſon is.

When they perceive that the grain will burſt eaſily by the preſſure of the fingers, they account it ſufficiently fermented; then they put it handful by handful into a canvaſs bag, to ſeparate the flower from the huſk; to effect which, they rub it with the hand, and beat it on planks laid croſs an empty veſſel, which is to receive the flower.

As, the veſſel being filled with this liquor, there ſwims at the top a reddiſh water, which is to be carefully ſcummed off from time to time, and clear water put into the veſſel; this, being well ſtirred together, is ſtrained through a ſieve or cloth, and what remains behind is put into another veſſel with freſh water, and expoſed to the ſun, as before, for ſome time; and, as the ſediment ſettles and thickens at the bottom, the water is drained off four or five times by inclination of the veſſel; but without paſſing it through the ſieve.

That which remains at bottom is the Starch; this is cut in pieces to get it out of the veſſel; which, being laid in the ſun to dry, is afterwards laid up for uſe.

Starch

Starch is not only for family uſes in ſtiffening linen, &c. but alſo in ſeveral trades, as perfumers, dyers, &c.

STATUARY, is a branch of ſculpture employed in making ſtatues.

Statuary was at the firſt but very rude. Dædalus is ſaid to be the inventor of ſtatues, who lived not only before the deſtruction of Troy, but even before the Argonauts; but yet it is certain, there were ſtatuaries before him; only he is alſo ſaid to have been the firſt who endeavoured to give them action and motion, and make them appear as if they were alive.

Before his time, ſtatues were made with their feet joined together, they not aiming at expreſſing motion or action. He firſt ſet the feet of his ſtatues at liberty, and gave them the attitudes of people walking and acting.

The firſt ſtatues erected to their gods are ſaid to have been made by the Phœnicians.

STATUES, are defined to be a piece of ſculpture, repreſenting a human figure, in full relievo.

But Statue is yet more ſcientifically defined by M. Daviler, to be a repreſentation of ſome perſon, diſtinguiſhed by his birth, merit, or great actions, in high relievo and inſulate; placed as an ornament in ſome fine building, or expoſed in a public place to preſerve the memory of him.

Statues are formed with the chiſſel, of ſeveral matters, as ſtone, marble, plaiſter, &c.

They are alſo caſt of ſeveral metals, as lead, braſs, ſilver, and gold. See the articles CASTING and FOUNDERY.

Statues are commonly diſtinguiſhed into four kinds:

1. Thoſe which are leſs than the life.

2. Thoſe equal with the life.

3. Thoſe that exceed the life; among which, thoſe among the ancients, which did ſurpaſs the life once and an half, were of kings and emperors; and thoſe double the life, of heroes.

4. Thoſe that exceeded the life, two or three times or more, and were called Coloſſus's, as that of Rhodes.

Achillean STATUES, is a name given to thoſe of heroes, from Achilles.

Allegorical STATUES, were ſuch as, under human figures or other ſymbols, repreſented ſomething of another kind; as age, element, ſome part of the earth, temperament, &c.

Curule STATUES, thoſe where the perſons are repreſented in chariots, drawn by either two or four horſes.

Divine STATUES, were ſuch as were conſecrated to the gods, as Apollo, Jupiter, Mars, Mercury, &c. demi-gods or heroes, as Hercules, &c.

Equeſtrian STATUES, were ſuch as repreſented ſome illuſtrious perſon

perſon on horſeback, as that of king Charles I. at Charing-Croſs.

Greek STATUES; ſo are called antique naked figures; the Greeks repreſenting their deities, wreſtlers, &c. in the Olympic games, which laſt uſed to perform naked.

Hydraulic STATUES, ſuch as are placed as ornaments on fountains, grottoes, &c. or that do the office of a jet d'eau pipe, &c. by any of its parts, or by any attribute it holds.

Pedeſtrian STATUES, are Statues ſtanding on foot, as that of king Charles II. on the Royal Exchange.

Roman STATUES, ſuch as are repreſented cloathed after the Roman manner, and were different. As,

Paludatæ STATUÆ, thoſe of emperors with long gowns over their armour.

Loricatæ STATUÆ, thoſe of ſoldiers with cuiraſſes.

Thoracatæ STATUÆ, thoſe of captains and cavaliers with coats of arms.

Togatæ STATUÆ, thoſe of magiſtrates with long robes.

Trabeatæ STATUÆ, thoſe of ſenators and augurs.

Tunicatæ STATUÆ, thoſe of perſons cloathed with a plain tunic.

Stolatæ STATUÆ, thoſe of women with long trains.

Caſting of STATUES. The firſt thing to be done towards caſting of a Statue, or any other piece of work in braſs, is to make a model in clay, prepared by the potters, who mix ſand amongſt it, to prevent the model's cleaving or breaking in drying.

When the model is finiſhed, a mould of plaiſter is put over it, while it is freſh, becauſe the parts are apt to ſhrink with drying.

The workman begins at the bottom of the figure, which is made up of ſeveral pieces from the foot to the knee, according to the bigneſs of the model; for, when the pieces are too big, the plaiſter is apt to chap.

Upon the firſt piece another is placed, always proportionable to the figure, and ſo continued from one to another as high as the ſhoulders, on which the head is put.

It is to be obſerved, that if it be a naked figure, whoſe pieces, which form the mould, being pretty big, may be peeled off eaſily; there is no need of covering them with a [chappe] ſhape: But if the figure is with drapery, or accompanied with ornaments, which oblige the artificer to make abundance of little pieces, to be the more eaſily peeled off, he muſt then make great ſhapes; that is, he muſt cloath all thoſe little pieces with other plaiſter in great bits, to incloſe the other; and oil the great, as well as the little joints, that they may not ſtick to one another.

Shapes are great pieces diſpoſed in ſuch a manner, that each

of them inclose several little ones, to which are fixed little rings of iron, to help to peel them off the more easily; and to make them keep in the shapes, by means of little cords tied to the rings, and put into the shapes, the great and little pieces are marked with cyphers, letters, and cuts, for the easier knowing them, and the better setting of them together.

When the mould of plaister is thus made, it must lie; and as soon as it is dry, and the sculptor is about to use it, if he is curious, he will not be contented with rubbing it with oil, but will heat all the parts of his model, and then fill them with wax; which he does, that the wax-work may be the more beautiful and more perfect: For, when they are only rubbed with oil, the waxen figure will commonly look mealy, because the wax always sinks in some part of the plaister; or rather the plaister sinks in part of the wax, which will still cause a more visible defect in the picture, and the cast will never be so fine.

The mould having been thus oiled, or rather waxed, when the workman is about to cast a figure in brass, he gathers all the little pieces that are in each great piece of the shape, which he presently oils all over with a pencil; then with another pencil he takes his compound wax, made as follows:

To six pounds of wax put half a pound of hog's grease, and one pound of Burgundy pitch, according to the season; for in summer the wax may be worked up alone, the other drugs being only to render it the more pliant and manageable: Of this sort of wax, either simple or compounded, the workman lays on to about the thickness of a silver penny, on all the parts of the mould; after which, he takes the same composition, and makes cakes of it of an equal thickness, according as he desires the brass should come, which is generally the fourth part of an inch.

These cakes he puts into the cavities of the moulds, and incorporates them with his fingers, with the wax that was laid on with the pencil, in such sort that they fill them all equally.

He then takes an iron grate, which should be three or four inches broader than the basis of the figure that is to be made, in which grate he raises once more bars of iron, turned according to the altitude of the figure; and pierced in several places to put rods through, of what length shall be thought necessary to bear up the soul, or nucleus, as Vitruvius calls it, or cœur, i. e. heart, as it is called by the French, of the piece to be cast.

The ancients made all their souls, the first rough figures made by stone-cutters so called, of their figures of potters-earth, horse-dung, and chaff, well beaten together; of which they formed a figure like to that of the model.

When they had well furnished this soul with pieces of iron along

along and athwart, according to its altitude, they flead it; that is, they took off as much of its thickneſs as they deſigned for the braſs.

After they had let this ſoul dry, they covered it all around with pieces and bits of wax, which they took out of the mould, and diſpoſed of them as will be ſhewn hereafter.

This way of forming ſouls of figures is practiſed by ſome founders, eſpecially for great braſs figures, becauſe the earth endures the force and violence of the fire better than plaiſter, which is commonly uſed in middling figures and ſuch are caſt in gold and ſilver.

However, ſculptors have ſeldom occaſion to make figures of an exceſſive bigneſs; they uſe it alſo for thoſe in braſs, but mix brick-duſt well pounded and ſifted with it; and, in working after this manner, they proceed thus:

They take the firſt lays of the mould filled with wax, as has been ſaid, which they ſet from bottom to top on the grate; about that, a bar of iron that is to ſupport the ſoul, tying them faſt together with cords, for fear the pieces ſhould ſeparate from each other, when the ſoul is to be made.

In order to make which, as ſoon as the firſt lay of the mould is diſpoſed of, the reſt are raiſed one after another; the ſculptor pours fine plaiſter, mixed with brick-duſt ſifted; for the brick-duſt helps the plaiſter to reſiſt the fire, and hinders its ſpreading.

When the firſt lay of the mould is filled, the ſecond is done; and ſo the reſt one after another, till they are all raiſed; and the ſoul is made of brick-duſt and plaiſter, as high as the figure is to be.

The parts are raiſed up thus, piece by piece, that the ſoul may be the better managed; and, to bear it up, iron rods are from time to time put through the principal parts beforementioned.

When all the parts of the mould are ſet together, and all the cavities filled, the ſhapes and all the parts of the mould are cleared; beginning at the top, and ending at the bottom: And then the figure appears intire, covering the ſoul which is within it.

The figure muſt be adjuſted, and made like the model after which it was formed; and, to make it the more perfect, the workman may add to, or diminiſh, as is convenient, in all the parts, to give the more grace and expreſſion to certain lines: For, as to the attitudes and diſpoſitions of the members, he cannot alter any thing without deſtroying the work.

When it is in its perfection, the caſts and vents are laid; theſe caſts are pipes of wax, made about an inch thick, for figures as big as the life, they being always to be proportioned to the bigneſs

neſs of the work, and even to the parts of the body, where they are placed.

The vents are alſo waxen pipes, but a little leſs; theſe pipes are made in moulds of plaiſter, of what ſize the artificer pleaſes, and then cut to about four or five inches in length.

Thoſe that are to ſerve for the caſts are placed one above another at ſix inches diſtance in a right line, the length of the figure, and ſometimes nearer, when there are draperies, and there is occaſion for a great deal of matter; when theſe pipes are applied to and ſoldered with the wax on the figure, ſo that the end which is not ſoldered is erected: There is a great pipe of equal bigneſs, faſtened to the end of theſe little pipes from the top of the figure to the bottom. All theſe pipes great and ſmall ſerve for the caſting of the matter, and thus three or four are made about a figure according to its bigneſs and diſpoſition; but, at the ſame time that theſe pipes are made to ſerve for the caſts, the ſculptor muſt apply, over-againſt and at the ſide that is on the ſame line, and at four inches diſtance, leſs pipes to ſerve for vents, which are to be ſoldered to the figure, and a great pipe which paſſes from top to bottom, like thoſe of the caſts. And becauſe all the wax, as ſoon as it melts, runs out of the mould, as will be ſhewn hereafter, he is very careful to ſupply all the extremities of the parts; ſtretching out from the body of the figure with theſe pipes, as the arms, fingers, drapery, and other things, from whence the wax muſt run.

All theſe pipes are hollow for their lightneſs only; otherwiſe they might be filled, but then they would be too heavy: A ſufficient quantity of them muſt be placed about the figure, and the workman muſt take all poſſible care to put them in thoſe places which he would have moſt ſupplied with metal, and which will be moſt eaſily filled up. Thoſe that are to ſerve for the face, ſhould be much leſs than thoſe that are to ſerve for the hands.

After having ranged all theſe different pipes the whole depth of the figure, the great elevated pipes, deſigned for the caſts, meet at the top two together, five or ſix inches above the figure, at a bowl or cup of wax four inches deep, and as many diameter, to the bottom of which they are fixed.

This cup ſerves to receive the metal, which communicates itſelf at the ſame time to the two pipes.

Thus, if there are four elevated pipes for caſts, there are two ſorts of cups more or leſs, as the artificer pleaſes, to carry the metal to all parts of the figure.

As to the parts which ſerve for vents, they run up to the height of the figure, higher than the others; for there is no need of their being joined together, nor having their cups.

The waxen figure being thus prepared and furniſhed with caſts and vents, the ſculptor takes a compoſition made of putty and cement of crucibles, well cleanſed and pounded; which he tempers in an earthen pot to the conſiſtence of a colour for painting, and a pretty bright one: Then with a pencil he carefully covers all the figure with it, as alſo the pipes, both thoſe for the caſts and thoſe for the vents.

This muſt be done ſeveral times, and the little cracks which will happen in this compoſition, muſt from time to time be filled.

When all the wax is well covered, he puts another ſort of compoſition upon it with a pencil that is thicker and has more ſubſtance, though made of the ſame ingredients before-mentioned, mingled with ſome mould or horſe-dung.

After ſix or ſeven of theſe lays, another thicker than any of the reſt is laid on with the pencil, made of mould and horſe-dung: That being dry, another is put on, and then another till ſeven or eight: At laſt a thicker ſtill is laid on with the hand, compoſed alſo of mould and horſe-dung; and this is followed by another; but the workman muſt be ſure that every lay is dry before another is laid on, and take care not to leave any part of the naked and drapery, but what ſhall be equally covered with every lay.

After this he takes ſeveral flat iron bars of the height of the figure, which at bottom is faſtened to hooks, that ſhould be at the ſide of the grate, on which the whole figure is placed; theſe bars muſt be at ſix inches diameter each from the other, and turned according to the attitude of the figure, in ſuch ſort that they may join to the mould, and coming from the top may meet in a kind of iron circle or bands of iron, which catch in the hooks of each bar.

Then the figure is girded from ſpace to ſpace, with other iron bands at the diſtance of ſeven or eight inches; theſe bars ought to be turned according to the diſpoſition of the figure, and joined with iron threads or wire to the bars that mount at top.

When they are all joined together, and in a condition to bear up the mould, the artificer takes ſome heavy mould mixed with horſe-dung and chaff, and covers all the mould and bars with it, inſomuch that it appears to be only a maſs of earth of about five inches thick: But it muſt be obſerved, that when a naked figure is to be caſt, which is only to be placed on its two legs; the right of the legs and thighs muſt be better ſupplied than that of the body, with earth; becauſe when the mould begins to be ſeethed, the lowermoſt part being ſooner heated than the middle of the body; before the ſoul, which is to the right of the

belly and ſhoulders is ſcethed as it ought to to be, the legs and thighs, which are not ſo big, will be burnt and conſumed with the fire before the trunk is hot through. And this caution is neceſſary in all the different pieces of work that can be made, if the workman would perform it with judgment, and prevent ſuch ill accidents as may happen upon the like occaſions.

When the mould is finiſhed after the manner before directed, the artificer orders a hole to be dug four-ſquare, large enough to contain the figure; but it muſt have a wide ſpace of at leaſt a foot or a foot and an half about it, and be deeper than the mould is high; for, at the bottom, it ſhould have a ſort of an oven, whoſe mouth muſt be on the outſide for the putting in of the fire, and above that a ſtrong iron grate, ſtrongly ſupported by the arch and walls of the oven; which ſhould be made of freeſtone or brick, as well as the four ſides of the hole from bottom to top.

After the grate is placed on the oven at the bottom of the hole, the mould is let down with engines, and the neceſſary proviſion made for it; pans are ſet under the pipes, that ſerve for caſts and vents to receive the wax that runs out of them; then the hole is covered by planks, and, by lighting a moderate fire under the figure, that, and all the place in which it is, is heated with a moderate heat, till the wax melts and runs out of the mould, none remaining behind; for, if there was, it would cauſe a deformity in the figure, when the metal ran into it.

The mould muſt not be ſo hot as to make the wax boil, which might hinder its running out intirely.

When it is thought all the wax is melted, which may be known by the quantity which comes out, for it muſt be weighed before it is put in; the pans are taken away, and the mouths of the holes at which the wax ran out are covered with earth; all the void ſpaces between the mould and the walls are filled with pieces of bricks, which are thrown down ſoftly and without ranging in order; and, when that is done to the top, a good wood fire is made under the furnace. The flame, being intermixed with theſe pieces of brick, cannot aſcend with violence or damnify the mould; but communicates a heat only in paſſing through thoſe pieces of brick, which it heats, ſo that it grows red, as does alſo the mould.

After the fire has burnt about twenty-four hours, and it is perceived that the bricks and moulds are lighted from bottom to top, that fire is let out, and the moulds grow cold again; all the bricks being taken away that were about it. When the heat is quite gone, earth is thrown into the hole to fill up the vacancy left by the bricks, and, as the earth is thrown down, it is trod upon and preſſed againſt the mould, which therefore ſhould not

be hot; for, if there remains any heat in it, it will imbibe the moiſture, which will cauſe many inconveniences when the metal comes to be caſt.

For the melting of metal, a ſtove muſt be made by the ſide of the hole in which the mould is: The area of this ſtove ſhould be two or three inches higher than the top of the hole, that it may be ſloping.

It ſhould be built in the form of a furnace with good tile-ſhards and mould, bound with good iron hoops, and big enough for the intended work.

The ſtove being finiſhed deep enough to contain the metal, two mouths are made above it, the one to throw the wood into, and the other to fan and give it air.

When the ſtove is very dry, a great wood fire is made, into which the metal, with which the figure is to be caſt, is thrown.

There ſhould be a third mouth at the ſide of the hole, which muſt reach to the area of the ſtove; this mouth muſt be well ſtopped with earth, while the metal is melting; but ſo that it may be opened when the workman pleaſes, and by a canal of earth it has communication with a ſort of great baſin made of mould, and placed above the figure; the middle of which baſin is to anſwer exactly to the cups to which the caſts are fixed.

This baſin is called by French workmen eſcheno; it muſt be firm, and made of good pounded earth, very dry; for which end it is put into a coal fire, well dried and afterwards pounded.

And to prevent the metal from running into the cups, as ſoon as the oven is opened, there are men ſet to cover them with a long iron bar, thick at the end, and turned there like the cup: There are as many of theſe bars and theſe men, as there are cups; that is, one or two, according to the nature of the work.

When the metal is melted, the workmen open the iron door, or rather unſtop the hole, which is at the right of the canal; this is done with a piece of iron at the end of a long pole. The metal, running out, falls into the eſcheno, where, when it is come, the cover is taken off the cups, the metal enters into the mould, and the figure is formed in an inſtant.

When the matter has thus filled the mould, it is left three or four days; then the earth that was put about it is taken off, by which means the mould grows quite cold; and when the workman finds it has no more heat in it, he breaks it, and diſcovers the figure in metal, with the lays and eſvents or vents of the ſame metal with itſelf.

It is ſawed on the place, to clean and get the figure out the more eaſily: After that it is cleaned and ſcoured with water, or with pieces of fir and other ſoft ſpungy wood, rubbing the cavities of the drapery and other parts of the figure.

If it be a little figure, it is waſhed with aqua-fortis, and when that water has had its effect, it is waſhed with common water; and after it has been very well cleanſed it is repaired, if it wants it; but great figures are never repaired at all.

The tools uſed in repairing are the burin, the round and flat graver, a little chiſſel, bodkin, and reſſloirs, which are a ſort of files.

When the figure is well cleanſed and repaired, the ſculptor colours it, if he pleaſes: There are ſome who do it with oil and red oker, others make it turn green with vinegar; but, in time, the braſs takes a varniſh that bears upon the black.

Thoſe who gild them do it two ways, either with leaf gold, or tempered and mixed with quickſilver; which is the firſt and moſt excellent way, and made uſe of in little figures: For this the workman takes one part of gold, and the other part of quick-ſilver; heats the figure, and puts on this compoſition, which whitens it; and, re-heating it, the fire exhales the quickſilver, and the figure remains gilt.

The other way is uſed in great figures, and where perſons would not be at much expence; the figure is ſcraped all over with little files and other tools to make it freſh and clear, then it is heated, and leaf gold laid upon it, which is done four times.

Baſs-reliefs are caſt after the ſame manner as Statues, that is, the mould is firſt filled with wax; after it is laid on as thick as is neceſſary, it is tempered with plaiſter or earth, which is put on the wax, to keep it in one piece at its coming out of the mould, and to repair it the more eaſily; then it is covered as the mould of Statues, with ſeveral lays of compoſition and earth; but the pipes for the caſts and eſvents or vents are put behind and on the edge of baſs-reliefs, and ſome on the figure.

The reſt is done after the ſame manner as is mentioned for Statues.

As to the metal which is uſed, that depends upon the founder's choice; only he muſt obſerve this, that for one pound of wax there muſt be ten pounds of metal, without allowance for waſte, which may be conſiderable in large figures.

For fine Statues the allay of the metal is half red copper, and the other half yellow. The Egyptians, who are ſaid to be the inventors of this art, put two thirds of braſs, and one third of red.

If the ſculptor would make little figures of braſs, he melts the wax, which he puts into the mould of plaiſter: The waxen figure is taken out of the mould in one piece, and hollow; which cavity is filled with plaiſter, and left to dry, that it may ſerve for the ſoul; all the reſt is done as for great figures.

Of caſting figures, or making STATUES *in ſtuck.* Several Sta-

tues are made in ſtuck. Theſe figures are for the ornament of cielings, friezes, and corniſhes.

As to the making figures, the firſt thing is to form the ſoul of plaiſter or lime mortar, and a cement of tile-duſt; putting bars of iron into thoſe parts of the figure that ſtand in need of being borne up.

When the ſoul is formed, it is then covered with ſtuck to work out the figure, for which the workman has his proper tools.

In the compoſition of ſtuck, one pound muſt be marble duſt, and two thirds lime.

There is a ſort of ſtuck made of plaiſter-ſtone managed as marble; inſtead of which, ſometimes, alabaſter is made uſe of.

As for ornaments of baſs-taille, moulds are uſed, that they may be made more readily.

The artificer takes a mortar compoſed of lime and ſand, or tile-duſt for the firſt aſſay; and, before it is quite dry, the ſtuck is tempered to a compoſition that is neither too hard nor too ſoft: When it is laid on the place where the workman would make an ornament, he applies the mould, called by French artiſts moulette, made of plaiſter, or a compoſition of wax, roſin, and brick-duſt, more durable than plaiſter.

The mould muſt be firſt powdered with marble powder, which being put upon the ſtuck, the artificer ſtrikes it with a mallet, and the figure of the mould remains on the ſtuck; after this the work is cleanſed, that it may appear the more ſmooth.

STEEL, is a kind of iron refined and purified by fire, with other ingredients, which renders it whiter, and its grain cloſer and finer.

Steel of all other metals is that ſuſceptible of the greateſt degree of hardneſs, when well tempered; whence proceeds its great uſe in making tools and inſtruments of all kinds.

The true method of making Steel has been greatly concealed, and the public long abuſed by counterfeit methods.

Agricola gives us the following method, and Kircher affirms it is that practiſed in the iſland of Ilva, a place famous in all ages for the manufacture of good Steel, from the time of the Romans to our own:

Heat a quantity of iron red-hot, cut it into ſmall pieces, mix it with a ſort of ſtone that eaſily melts. This mixture put by little and little into a crucible, firſt filled with charcoal-duſt and heated red-hot; when it is melted off, three, four, or more pieces of iron are to be put into the middle of it, and there boiled for five or ſix hours with a ſtrong fire.

This melted matter muſt be often ſtirred by the workman, that the pieces of iron may ſoak in the particles of the melted iron; which particles conſume, and thin the groſſer ones of the

iron

iron pieces, and are as it were a ferment to them, and make them tender.

Then one of the pieces is to be taken out of the fire, and put under the great hammer to be drawn out into bars, and wrought; and hot as it is plunged into cold water.

Having been thus tempered, it is again worked upon the anvil; then, breaking it, it is considered, whether, in any part, it looks like iron, or whether it be wholly condensed and turned into Steel.

To soften STEEL *for engraving upon.*—This is done with a lixivium of oak ashes and unslacked lime, by casting the Steel into it, and letting it remain for fourteen days. Or thus; take the gall of an ox, the urine of a man, verjuice, and juice of nettles, of each alike; mix them, then quench the Steel red-hot therein, four of five times together, and it will become very soft.

Thomas STEVENSON, was bred up under Aggas, and became a good painter, not only in landscape, but also in figures, and architecture in distemper. He was especially eminent for scene-painting, though his works are not so much in esteem at this day, as when he lived.

STOLZIUS. He engraved in the Gothic taste, and used this mark.

John STONE, was an extraordinary copier in the reigns of Charles I. and II. He was bred under Cross, and, having the foundation of an exquisite draughtsman, performed several admirable copies, after many good copies in England. He did a great number of them, and they are reckoned amongst the finest of any English copier. He did also some imitations after such masters, as he more particularly fancied; which performances of his are still in great repute, and received into the best collections amongst us. He spent thirty-seven years abroad in the study of his art, where he improved himself in several languages, being besides a man of some learning. He died in London the 24th of August 1653, and lies buried in St. Martin's.

STONES, are hard, solid, mineral bodies, neither fusible nor malleable, formed in the succession of time in the bowels or body of the earth.

Peter STOOP, was a Dutch battle-painter, who came into England from Portugal with the late queen-dowager; his chief study was battles, huntings, and havens, which he performed for some time with good success; but after the arrival of John Wyke in England, who painted the same way, his pictures were not so much valued, by reason of the greater excellency of that master. This Stoop etched several prints of horses, as also the queen-dowager's public entry. He died about seventy years ago.

STRADA, means Veſpaſian Strada of Rome.

To dye ſilk a STRAW *colour.*—Firſt alum and rinſe the ſilk, and for every pound of it boil one pound of broom flowers for a quarter of an hour; then pour it into a tub, which muſt be in ſize proportionable to the quantity of the ſilk; then put to it an equal quantity of water, and, after you have ſtirred the ſilk in it, fill the kettle again with water, and boil it a quarter of an hour. The ſilk being wrung out of the firſt ſuds, put them into the ſecond; and, if you ſee occaſion, make a ſtronger yet, and ſtir the ſilks in it, till the colour is ſufficiently heightened; then rinſe it out, and hang it up to dry.

To dye ſtuff a STRAW *colour.*—Firſt dye the goods yellow, and throw half a pint of urine into the dye; put in the goods, and work them about, as long as you think convenient.

Robert STREATER, was born in the year 1624, and bred up to painting and deſigning under Du Moulin. Being a perſon of great induſtry, as well as capacity, he arrived to a very eminent degree in divers branches of his art, eſpecially in hiſtory, architecture, and perſpective, wherein he excelled all of his time in England, and ſhewed himſelf a great maſter by the truth of his outlines, and the learning of fore-ſhortening of his figures, as may be ſeen by his works. He was alſo excellent in landſcape, having a mighty freedom of pencilling with equal invention, and was moreover remarkable for ſtill life, inſomuch that there are ſome of his fruit ſtill to be ſeen, which are of the higheſt Italian guſto, both for pencilling, judgment, and compoſition. To do him but juſtice, he was the greateſt and moſt univerſal painter that ever England bred, which we owe in ſome meaſure to his reading, he being reputed a very good hiſtorian, which no doubt contributed not a little to his perfection in that way of painting. Upon the reſtoration of king Charles II, he was made his majeſty's ſerjeant-painter. He died, after having been firſt cut for the ſtone by a ſurgeon, whom king Charles II. ſent for from France, for that purpoſe, in the year 1680, at fifty-ſix years of age, after he had lived in great reputation and eſteem all his life. His principal works were at the theatre at Oxford; ſome cielings at Whitehall, which are now burnt; the battles of the giants with the gods at Sir Robert Clayton's; the pictures of Moſes and Aaron in St. Michael's church in Cornhill.

To put a STREET *in perſpective.*—A bare ſight of the figure may ſuffice to ſhew the method, which is exceeding eaſy.

All you have to do is to make a plan of ſimple ſquares the common way; and to take one, two, or three of the ſquares for the breadth or length of each houſe, and in ſuch breadths, &c. to ſet off the meaſures of the doors and windows, and to get the diminutions by drawing lines from the ſeveral meaſures

to

Fig. 1.

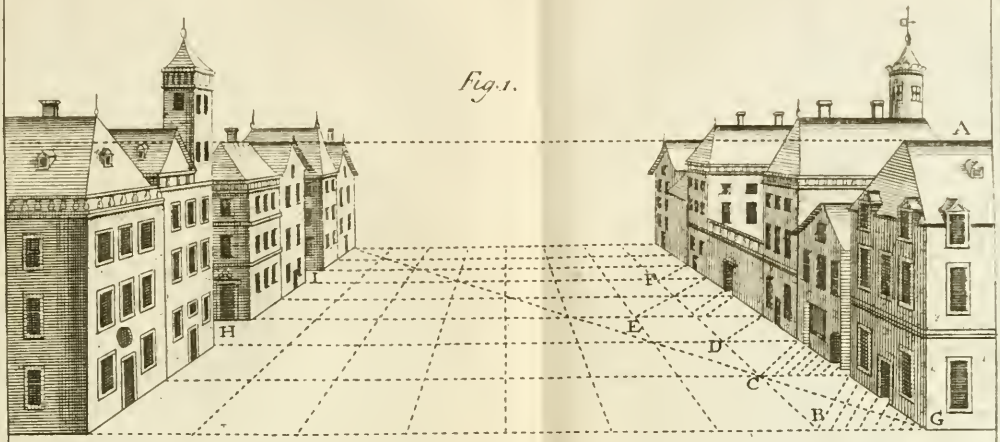
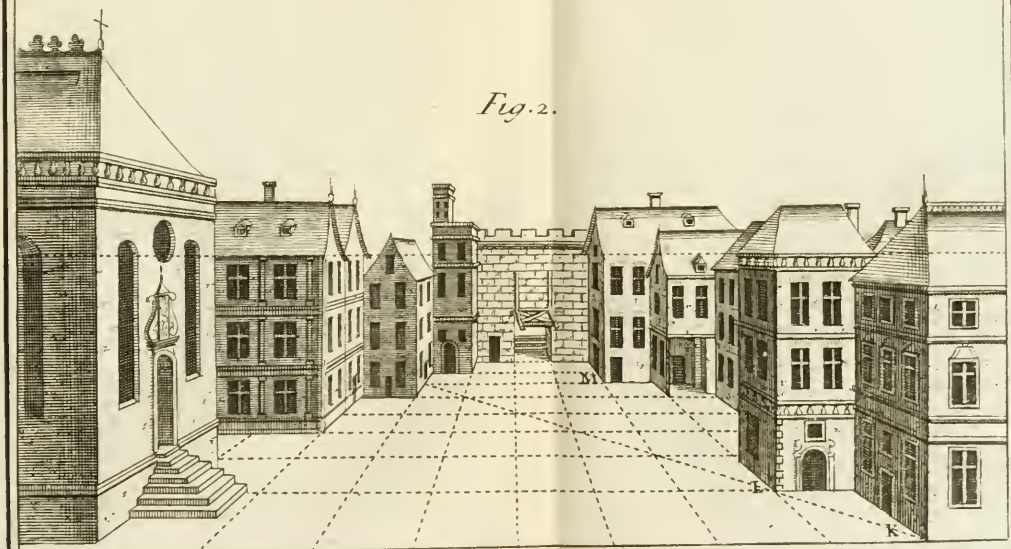


Fig. 2.



to the point of diſtance; as here from BCDE and F, plate XX. fig. 1.

The firſt angle of each houſe may ſerve for a line of elevation, as the angle G in the firſt houſe.

If you require any croſs ſtreets, one, two, or three ſquares are to be left vacant, and nothing upon them, as here at H and I.

Fig. 2, is to ſhew, that, where houſes are to be made to advance or fall back, you have only to put their elevations forwarder or backwarder on the plan of their ſquares.

Thus L advances a ſquare farther than K, and M farther than L, and ſo of the reſt.

STRENGTH, is repreſented, in painting, &c. by a woman in armour, her ſtature upright, big-boned, plump breaſts, harſh hair, ſparkling eyes, a ſpear in her hand, with an oak-branch, a ſhield on her arm with a lion and a wild boar.—All theſe denote Strength; the oak-branch and armour ſhew Strength of body and mind; the ſpear denotes ſuperiority procured by Strength; the lion and boar the Strength of body and mind, the one acting with moderation, the boar runs headlong with fury.

STRICTNESS, is repreſented, in painting, &c. by an old woman, ſurrounded with many wreaths of ivy, holding in each hand branches of the ſame.— The power of conſtraint is attributed to the ivy, ſignifying to bind and twiſt; it was a ſad omen to the prieſts amongſt the Romans, even to touch it, or name it, that they might not ſeem to be any way ſtreight-laced, either in thought or deed.

STUBBORNNESS, is repreſented, in painting, &c. by a woman all in black, a great deal of ivy growing about her habit, and a leaden cap on her head.—The black denotes firmneſs and ignorance, from whence proceeds Stubbornneſs; the lead denotes ignorance and unwieldineſs, the mother of the ſame; the ivy denotes, that the opinionativeneſs of obſtinate men has the ſame effect upon them, as the ivy has, which makes the wall to decay and tumble down, where it takes root.

STUCK, marble pulveriſed, mixed in a certain proportion with plaiſter; the whole well ſifted, and worked up with water, and uſed like common plaiſter. See STATUES.

STUDY, is repreſented, in painting, &c. by a pale youth in a modeſt garb, ſitting down, his left hand on a book lying open, on which he is very intent; a pen in his right, a lamp and a cock on each ſide.—Paleneſs denotes his pining away, his ſitting his ſedentary life, his being intent ſhews ſtudy to be a great application of mind; the pen, his deſire to leave ſomething behind him to make him be remembered by others; the lamp, that ſtudents ſpend more in oil than wine; the cock, vigilance.

STUPIDITY, is repreſented, in painting, &c. by a woman, laying

laying her hand upon the head of a goat, with an eringo-branch in her mouth, a narciſſus flower in her left hand, crowned with the ſame.—The goat denotes Stupidity; the narciſſus is derived from the Greek, narche, ſtupid; and Narciſſus ſo in love with himſelf grew ſtupid, and was drowned: The eringo is a ſtupifying plant.

SUBLIMATE, is a chymical preparation, the baſis whereof is mercury or quickſilver. It is prepared of mercury, either crude or revived from cinnabar, together with ſpirit of nitre and vitriol, lixiviated to a whiteneſs, and ſea-ſalt decrepitated, the whole reduced into a white brilliant maſs by ſublimation. It is white, and full of ſhining cryſtalline veins. It cannot act, unleſs it find ſome humidity to act upon, and is then a violent poiſon.

To prove the goodneſs of SUBLIMATE.—Caſt it on the coals, and if it is good, it will burn of a blue flame; but if it make any other colour, it is naught, and has arſenic in it. Or: Take the Sublimate, and drop thereon a few drops of oleum tartari per deliquium; if it turns the ſubſtance of a deep yellow, reddiſh, or orange tawney, it is good; but if not, or it be black, there is arſenic in it.

SUCCOUR, is repreſented, in painting, &c. by a man in armour, with a drawn ſword in one hand, and an oaken branch and acorns in the other.—Armed, to help the weak and neceſſitous; the branch, to help in time of ſcarcity and famine with the acorns, for anciently men had recourſe to that fruit in time of need, it being dedicated to Jupiter, who ſuccours every one.

Euſtace le SUEUR, born in the year 1617, a ſcholar of Vouet's, lived at Paris, excelled in hiſtory, died in the year 1696, aged eighty years.

SUFFERING, is repreſented, in painting, &c. by a woman that looks to be pretty old, ſeeming to ſupport a huge ſtone with this motto, Rebus me ſervo ſecundis.—To ſuffer is, as it were, to bear ſome weight, not taking notice of its weight, aiming at ſome good; and ſo men ought to bear fatigues for the love of virtue; the motto denotes the end of Suffering, which is reſt and quietneſs, becauſe the hope of probable benefits make us endure all fatigues willingly.

SULPHUR, a fat, unctuous, mineral ſubſtance, fuſible and inflammable by fire, and not diſſoluble or capable of being mingled with water.

Sulphur, properly ſo called, or brimſtone, is of three kinds; viz. vivum, mineral, and common ſulphur.

Sulphur vivum is thus called, as being ſuch as it is taken out of the mine; it is a kind of greyiſh argillous clay, which eaſily takes fire; and in burning emits a ſtrong ſulphureous ſmell, and, by reaſon of its colour, it is ſometimes called grey Sulphur. It

is

is chiefly brought from Sicily, and is not much uſed, except in ſome Galenical compoſitions; and to ſulphur wine, to make it keep in carriage. The beſt is ſoft, ſmooth, friable, and ſhining, of a mouſe colour, and not too full of ſmell.

Mineral ſulphur, called alſo yellow ſulphur, is a kind of hard earthy bitumen, of a ſhining yellow colour, a ſtrong ſtinking ſmell, eaſily taking fire, and diſſolving. It is found in great quantities in the neighbourhood of vulcano's, or burning mountains; as Ætna, Veſuvius, &c. and it is likewiſe found in its particular mines; and we have very good from ſeveral parts of Italy and Switzerland, though the beſt is that of Quitto and Nicaragua in America.

It is from this Sulphur, that the common Sulphur uſed in gunpowder, and on divers other occaſions, is drawn, by means of fire and whale oil; which diſſolving it, it is poured into moulds, and thus formed into thoſe cylinders we find it in. This common Sulphur is either better or worſe, according to the refinery it comes from. That of Holland has for a long time had the vogue; that of Venice is reckoned the ſecond; and that of Marſeilles is allowed the third.

Beſides the uſe of Sulphur in phyſic or chymiſtry, and the compoſition of gunpowder; it is uſed for whitening ſilks and woollen ſtuffs, for which purpoſe the vapour is contrived to be received by them.

Metals are ſuppoſed to conſiſt of two eſſential parts or principles, mercury as the baſis or metallic matter, and ſulphur as the binder or cement, which fixes the fluid mercury into a coherent malleable maſs.

SULPHUR *ſaturni*, an ingredient in paſtes for all ſorts of artificial gems, and is made in the following manner: Take ceruſs, or white lead ground very ſmall; put it into a great glaſs body, and pour thereon as much diſtilled vinegar as will riſe a palm above it; and, as the vinegar will riſe and ſwell very much at firſt pouring on, you muſt take care to pour it on gently, until all the fury and noiſe be gone: Then ſet this body on a hot furnace in ſand, there to evaporate the eighth part of it away; then let it cool, and decant off the remainder of the vinegar, which will be well coloured, and full of ſalt, which keep in another glaſs veſſel. Then pour freſh diſtilled vinegar on the remainder of the ceruſs; ſet it again on the furnace to evaporate as before, and decant off that vinegar as the former. Reiterate this proceſs of putting freſh vinegar on your matter, and evaporating it, and decanting it off till it have no further colour, nor ſweetneſs; which commonly happens about the ſixth time. Take all your coloured vinegars, and carefully filtre them off; then take one or more glaſs cucurbits, and evaporate all the vinegars over a gentle fire,

fire, and you will find remaining at bottom a ſalt of ſaturn of lead very white.

Then take a glaſs matraſs, lute it well down to the middle of the body, and put your ſalt of lead in it, and put it on a ſand furnace over a gentle fire for the ſpace of twenty-four hours, covering it with ſand up to the neck. Then take out your ſalt, which ought to be as red as cinnabar, and grind it fine on a marble: If it be yellow, you muſt put it on the fire again for twenty-four hours longer, and take care it do not melt, for then all is ſpoiled.

When your ſalt of lead is perfect, as we have ſhewn, you muſt put it again into a glaſs cucurbit, and pour diſtilled vinegar on it as before, and decant it off, when it is enough coloured; and put freſh vinegar on the remaining ſalt, and continue until all the ſalt be diſſolved, and the fæces and dregs all ſeparated. After that, put all theſe coloured vinegars into glaſs veſſels, and let them ſtand ſix days to ſettle, then filtre them carefully, and ſeparate all the fæces. Then put all theſe filtred vinegars into a great glaſs body to evaporate as before, and you will find at the bottom a very white ſalt of lead, as ſweet as ſugar.

This ſalt, being well dried, diſſolve it afreſh in common water, and let it ſtand ſix days, that all the fæces may precipitate to the bottom. Then filtre that water, and evaporate it in a glaſs cucurbit over a gentle fire, as we have ſaid, and you will have at bottom a ſalt more white than ſnow, and as ſweet as ſugar. Reiterate this method of diſſolving in fair water, filtring and evaporating until three times; then take your ſaccharum ſaturni, and put it in a glaſs body over a ſand furnace over a temperate heat, where leave it for ſeveral days, without augmenting the fire; then it will become redder than cinnabar, and give a calx finer than wheaten flower.

It is this calx thus purified from all its terreſtreity, which is called Sulphur of ſaturn. Now, in making paſte for emerald, ſapphire, granate, topaz, chryſolite, blue, and other colours, you muſt employ it inſtead of minium in the ſame doſes as we have ſhewn elſewhere: Obſerving all we have noted in the ſubject of baking, and proceeding; then you will have ſtones of different colours, far fairer than the natural ones, and which can ſcarcely be diſtinguiſhed from them.

The paſte, made with this ſulphur, will not have that greaſe and yellowneſs, which others have; and will not be ſo apt to ſpot by the breath: Upon this account, the curious will have no cauſe to repent the trouble of making this Sulphur, though the work be very laborious.

SUMACH, a drug uſed in dying green, as alſo in the preparation of black Morocco and other leather.

It

It consists of the leaves and young branches of a shrub, not unlike the little service-tree; the leaves are longish, pointed, and hairy: The flowers grow in clusters, and are red like our roses. Its fruit is a kind of grape, of a very astringent quality; and its seed almost oval, and inclosed within a capsula of the like figure.

SUMMER *solstice*, is represented, in painting, &c. by a young man naked, wings on his feet, seems to retire backward; ears of corn on his head, with a circle, on which are nine stars, in the midst of which is Cancer, a globe in one hand, the fourth part of which is darkened, and the rest illuminated; a crab fish in the other, four wings party-coloured on his feet.

Twenty-five years denote the fourth part of man's life, as the sun going from Aries to Cancer has finished the fourth part of his course; naked, shews excessive heat; backward, to shew the sun retires when at the equinoctial; the stars on his head, because then the sun stands perpendicular over us, and makes the solstice; the wings shew the continual circular motion; the colours denote the difference of night and day at that time.

SUN-FLOWER to paint; cover it with masticote and gamboge, and finish with gall-stone and bistre.

Lay the green on with verditer and masticote, and shade it with bladder green.

SUPERSTITION, is represented, in painting, &c. by an old woman with a nightingale on her head, an owl and a crow on each side below; in her left hand a lighted candle, in the right an orb, with the planets on which she gazes very timorous. Old, because such persons are most superstitious; the nightingale is taken for a bad omen, which by her singing in the night threatens bad luck, as does the owl; the candle denotes the ardent zeal superstitious persons think they have, they fear, but do not love God; the stars, the vain fear of things above, and constellations, and doing things at one time, rather than at another, from whence astrology had its rise, and from whence Superstition flows.

SUSTENANCE, is represented, in painting, &c. by a lady in a robe of cloth of gold; in her right hand a gleaning of corn; in her left a bunch of grapes, with milk spirting out of her turgid breasts. These allude to the bounty of nature, that, when we are infants, we are nourished with milk; when grown to maturity, with bread and wine.

SWIFTNESS, is represented, in painting, &c. by a young woman in a loose green habit, in a running posture, an arrow in one hand, wings on her shoulders, and on her heels, like those with which mercury, the swift messenger of the gods, is painted; all these shew great Swiftness.

John SYBRECHT was a landscape-painter, born at Anwerp, and

and brought up under his father. He was a close imitator of nature in all his landscapes; and in his younger days went upon the Rhine, and other adjacent places, where he drew several pleasant views in water colours.

The Duke of Buckingham, in his way home from France, passing through the Netherlands, staid some time at Antwerp, where meeting with several of this master's works in landscape, he was so well pleased with them, that he invited him over to England, and made him his painter, and he did a great number of those pictures for him at Cliveden-house.

He also performed several pieces for the nobility and gentry of England, amongst whom he was for some time in vogue.

He also drew several sorts of cattle with good success, which he commonly placed in his landscapes.

He died about fifty years ago in London, and lies buried in St. James's church, being seventy-three years old.

SYMMETRY, is represented, in painting, &c. by a woman at perfect age, naked, of singular beauty, and all her members are uniform, and correspond with her beauty; a piece of cloth goes across her, all spangled with stars; a curious piece of architecture by her, in one hand is a plumb-line, and compasses in the other, going to measure the stature of Venus.—Her age shews her arrived at her just proportion; naked, to shew that all the parts ought to correspond in true proportion; the instruments are to measure the uniformity.

SYMPATHETIC *inks* are such as can be made to appear and disappear very suddenly, by the application of something that seems to work by sympathy.

1. Take unslacked lime two or three parts, and one of yellow orpiment; reduce them to powder, and mix them, adding to them fifteen or sixteen times as much water, as you have orpiment; put them into a glass bottle or phial, and stop them with a cork and bladder, and set it in warm embers, shaking the phial now and then for five hours, and then warily decant the clear part, or rather filtrate it.

In the mean time, burn a piece of cork thoroughly; and, when it is well inflamed, quench it in common water, or rather in brandy. It being thus reduced to a friable coal, grind it in fair water, in which gum has been dissolved, and it will make a liquor as black as common ink.

While this is preparing, dissolve a quantity of red lead in three times as much distilled or strong vinegar over warm embers, or of saccharum saturni in three times the quantity of water for three or four hours, or till the liquor has a sweet taste. This liquor will be as clear as common water.

Having prepared the inks as before directed, write what you would

would write on paper with this laſt liquor, dry it, and nothing will appear.

Over the place write what you pleaſe with the ſecond liquor, and it will appear as common ink. When it is dry, dip a piece of rag or ſpunge in the firſt liquor, rub it over the written place, and the black writing will vaniſh; and that wrote with the inviſible ink will appear black and legible.

Again, take a book four or five inches thick, and on the firſt leaf write any thing with the laſt liquor; turn to the other end of the book, and rub there with a rag dipped in the firſt liquor, on that part, as near as you can gueſs, oppoſite to the writing; and leave alſo the rag there, clapping a paper over it. Then, ſhutting the book nimbly, ſtrike four or five ſmart ſtrokes thereon with your hand, and, turning the other ſide uppermoſt, clap it into a preſs, or lay it under a good weight for a quarter of an hour, or half that time; then will the writing, done with the inviſible ink, be found legible.

2. Diſſolve white or green vitriol in water, and, writing with the ſolution, nothing will appear.

Boil galls in water, and dip a linen rag in the decoction, and with it rub the place written before, and it will appear black and legible.

Rub it over again with ſpirit of vitriol, or its oil, and the writing will diſappear again; rub it over again with oil of tartar per deliquium, and the letters will appear again, but of a yellow colour.

T.

TABBYING, is the paſſing a ſilk or ſtuff under a calender, the rolls of which are made of iron or copper, variouſly engraven, which, bearing unequally on the ſtuff, render the ſurface thereof unequal, ſo as to reflect the rays of light indifferently, making the repreſentation of waves thereof, as on a tabby.—It is performed without the addition of any water or dye; and furniſhes the modern philoſophers with a ſtrong proof, that colours are nothing but appearances.

TACAMACHA, } is a ſort of reſinous gum, which diſtils,
TACAMAHACA, } from the trunk of a very large tree growing in new Spain, but moſt plentifully in the iſland of Madagaſcar.

There are of it three different ſorts; Tacamacha in the pod, Tacamacha in the maſs, and Tacamacha in tears.

The firſt is the natural reſin, as it falls of itſelf, without making any inciſion in the tree. To be good, it ſhould be dry, reddiſh,

diſh, tranſparent, of a bitter taſte, and a ſtrong ſmell, reſembling that of lavender. It is gathered by the iſlanders in little gourds, cut in two, and covered with a palm leaf.

The Tacamacha in tears and in the maſs, are thoſe that flow from the tree out of inciſions; it ought to be choſen dry and clear, and the ſmell muſt be the ſame with the firſt ſort. This gum is uſed in ſome varniſhes.

Colours for TAFFETY. Taffeties are painted much after the ſame manner as ſattins are; therefore take ſuch as are fit for the purpoſe, and lay them one by another, and ſhadow them with others.

TALC, } is a ſhining, flaky, or ſcaly, fiſſile ſtone, which
TALK, } may be eaſily ſeparated into tranſparent leaves or ſcales.

It was formerly found in mines in Cyprus, Cappadocia, Arabia, and Africa; but at preſent it is chiefly dug out of the Alps and Apennines, ſeveral mountains in Germany, and alſo in England, particularly in Northamptonſhire.

It is uſually diſtinguiſhed into two kinds; the white Talc of Venice, and the red of Muſcovy.

That from Venice is accounted the beſt; it is brought to us in large, green, ſhining ſtones; but, when it is wrought, becomes white and exceeding tranſparent.

It is uſed to be put before paintings in miniature, and crayons, to preſerve them, it being parted into thin laminæ or ſlices.

The Talc brought from Muſcovy is found in quarries either there or in Perſia; is reddiſh when in the ſtone, though it ſeldom comes to us otherwiſe than in leaves, which are hard, ſmooth, poliſhed, and exceeding tranſparent; and is uſed as the other to put before paintings, and alſo for making lanthorns.

TAN, the bark of a young oak beaten ſmall, and uſed by curriers for the tanning or dreſſing of leather.

TANNER, one who dreſſes hides, &c. by tanning, ſo as to make leather of them; he uſes much bark in the way of his employment, concerning which there are ſeveral terms.

1. Scutching the bark, which is the cleanſing it from moſs, and the rough cruſty outward rind, with an inſtrument called a ſcutching knife.
2. Hewing the bark, that is, chopping it into ſmall pieces.
3. Grinding it, by putting it under the mill to grind it ſmall.
4. Drying the bark, which is drying it, that it may grind.
5. Setting down. 6. Stretching. 7. Laying down.

TANNERS *mill*, an engine made uſe of by Tanners for the grinding and cruſhing their bark; being a large, round, wooden trough, with a pretty big ſtone ſet on edge, or turning part, with ſharp ſtrong knives, leaded into the ſtone; which ſtone, being turned

turned in the trough, cauſes the irons to cut the bark very ſmall.

TANNING *engine*. A convenient inſtrument for this purpoſe may be made, of a long, ſquare, wooden block, and ſome pieces of iron to be faſtened on, and uſed about it, viz. an anvil, an hammer, an iron holding the wood to be bruiſed and cut, and a knife to cut the ſame.

Now oak or elm is accounted beſt for the block; the dimenſions whereof may be as follows: The length of the block about four feet, the breadth fifteen or ſixteen inches, and the depth eight or ten inches; there are to be alſo iron pieces, and a ſquare hollow, to receive a plate of iron, ſerving for an anvil, for beating and bruiſing the Tanning ſtuff upon; which anvil may be about four inches deep, nine inches broad, and twelve inches long. Then there is the iron for claſping and holding the materials to be bruiſed and cut; which iron muſt lie croſs the engine, about the middle of the ſaid piece of timber, and may be about three inches broad; it is to have two hooks at one end, which are turned upwards, and muſt be hooked into the loops of the two hinges, that are let in and faſtened to the ſide of the engine, in ſuch manner that this claſping piece may have liberty to be raiſed a little for putting the Tanning ſtuff under it.

At the other ſide, there is to be a ſingle hook, likewiſe turned upwards to hang a weight upon, while the ſtuff is bruiſing upon the anvil, or cutting by the knife. The bottom ſerves to take up this piece by, and all on the other ſide of the block are the places for the four feet to ſet this engine upon, which are of a convenient height to work upon it.

The next thing to be provided is a hammer, for beating and bruiſing the ſtuff, which may be the weight of ſix pounds, and have the head about three inches ſquare to work with both hands; but to work with one hand, or for a youth to uſe, let it be about three pounds weight and two inches ſquare. The ſurface of one end of theſe hammers will be beſt to be ſmooth; but that of the other end, the better to enter into the ſtuff, rough or with an edge or point; they muſt be well ſteeled at both ends; and their handles may be about a foot long.

There muſt be alſo a knife to cut the ſtuff, which muſt be eight or nine inches broad, and near as much in length, made like a tobacco knife with a handle to work; this knife ſhould be faſtened to the block at the two oppoſite ſides, that are to be hollowed with two grooves; and this faſtening is to be performed by two pieces of iron, to be fitted into the ſaid grooves, to hold and guide the knife in working. One piece is to be faſtened to the end of the knife by a pin paſſing through three holes, and this end is to be ſcrewed into the groove by a pair of ſcrew-pins; then another piece, being forked, is to receive the other end of the knife, the

ſolid ſquare part of which is to be fixed in the groove that is underneath, by two iron plates, under which it muſt run in the ſaid groove, ſo as that it may be ſlipped out from under it, and laid by when the engine is not uſed; at which time alſo the piece of the other end may be unſcrewed and laid up.

The two long ſquares upon one end of the block are two iron plates to be faſtened, where the knife moving in a fit cavity is to cut the bruiſed ſtuff between them; and, of theſe plates, that which lies next the end is to be laid a little lower, the block being there pared accordingly, that ſo the ſtuff may fall off from the end of the engine quicker, as the left hand furniſhes the knife with the materials to be bruiſed, while the right hand is cutting them; let the hollow place where the knife cuts, be as near as may be ſo big only, that the knife may eaſily fall and riſe; and let the block be hollowed under the cutting hole, and ſloped off at that end, for the ſtuff to fall off as the knife cuts it.

TANNING *of leather.* As for the beſt and cheapeſt way of managing this affair, it ought to be that every part of the oak tree, of what age or growth ſoever, and all oaken coppice wood of any age or ſize, being cut and procured in barking time, will tan all ſorts of leather, as well at leaſt as bark alone; this material therefore being got in its proper ſeaſon, it muſt be very well dried in the ſun, and more than bark; then houſed dry, and kept dry for uſe.

When it is to be uſed, the greater wood may be ſhaved ſmall or cleft fit for the engine, and the ſmaller bruiſed, and cut ſmall by the engine; which being done, it muſt be dried again very well upon a kiln, and then ground, as tanners uſually do their bark.

Such wood as is to be made uſe of preſently after it is got, will require the better and more drying upon the kiln, otherwiſe it will blacken and ſpoil all the leather.

Where oak is ſcarce, thorns may indifferently ſupply that ſcarcity.

Now all theſe ingredients will tan better than bark alone, and that with far leſs charge; and by this means the felling of timber, when the ſap is up, may be prevented; which, when it is done, cauſes the outſides of the trees to rot and grow worm-eaten; whereas, if the trees had been felled in winter, when the ſap was down, they would have been all heart, as it is called, and not ſubject to worms.

Method of TANNING *the hides of oxen, cows, horſes,* &c. If the ſkins are intended to be kept, after they have been ſtead off the carcaſs they are ſalted with ſea ſalt and alum, or with a kind of ſaltpetre called natron.

But, if they are not deſigned for keeping, the ſalting is omitted,

as being of no uſe, but to prevent the hide from corrupting, before it can conveniently be carried to the tan houſe.

Whether the hides have been ſalted or not, the firſt thing the tanner does, is to take off the horns, ears, and tail; which being done, he throws them into a running water for about thirty hours to cleanſe them from the blood, and other impurities that adhere to the inſide.

After this, they are laid over night in a lime pit that has been uſed; out of which, they are taken and left to drain three or four days on the edge of a pit.

This firſt and ſlighteſt preparation being over, it is returned into a ſtrong lime pit for two days, and then taken out four more; and thus, for ſix weeks alternately, taken out and put in twice a week.

At the end of ſix weeks they are put into a freſh pit, where they continue eight days, and are taken out for ſo many; and this is done alternately for twelve or eighteen months, according to the ſtrength of the leather or the weather; for in great heats they put in freſh lime twice a week; and in froſt they ſometimes do not meddle with them for three months. Every freſh lime pit they throw them into, is ſtronger and ſtronger.

At four, five, or ſix weeks end, the hair is ſcraped off on a wooden leg or horſe, with a kind of kniſe for that purpoſe; and, after a year or eighteen months, the hair being perfectly got off, they are waſhed in a river, and the fleſh is pared off on the leg with a kind of cutting kniſe, and the hides are rubbed briſkly with a ſort of whetſtone, to take off any remains of fleſh or filth on the hair ſide.

This being done, they put the ſkins into the tan, and cover it over with tan, as it is ſtretched in the pit, and water let in upon it; if the ſkin be ſtrong, five coverings of tan will be requiſite; but three or four may ſuffice for weaker.

When the ſkin has not been kept long enough in lime or the tan pit, upon cleaving it in the middle, a whitiſh ſtreak is ſeen, called the horn or crudity of the ſkin; and this is the reaſon why the ſoles of boots, ſhoes, &c. ſtretch ſo eaſily and take in water.

When the hides are ſufficiently tanned, they are taken out of the pit to be dried, by hanging in the air; then they clean the tan off of them, and put them into a place neither too dry nor too moiſt; ſtretching them well over one another with a weight at top, to keep them tight and ſtreight; and then they are fit for ſale, under the denomination of bend leather.

This is the method of Tanning the hides of oxen or bullocks; the hides of cows, or horſes, and calves are tanned much after the ſame manner as oxen; excepting that the former are only

kept four months in the lime pit, and that they muſt have a preparation before they are put into the tan pit as follows:

The ſkins being put into a wooden vat or tub, cold water is poured to them; in which they are kept ſtirring while ſome other water is warming in a kettle, which water, when it is a little more than lukewarm, is poured gently into the vat, and a baſket of tan is thrown upon it; during which time, the ſkins are ſtill kept turning, that the water and tan may not burn them.

After an hour they are taken out, and caſt for a day in cold water; then returned into the former vat, and the ſame water they were in before; in which they are let lie for eight days; which being expired, they are put in the tan pit, and three coverings of tan given them; the firſt of which laſts five weeks, the ſecond ſix, and the third two months.

The reſt of the proceſs is in all reſpects the ſame as that above delivered.

The operation of Tanning is performed on leather better in the Weſt-Indies than in England. They uſe three ſorts of bark, the mangrave bark, the olive bark, and another; and the whole buſineſs is ſo ſoon done, that a hide delivered to them is in ſix weeks ready to be worked into ſhoes, though they beſtow leſs labour than we do.

Every part of the oak tree, of what age or growth ſoever, is fit for the tanners uſe; and all oaken coppice wood, of any age or ſize, being cut and procured in barking time, will tan all ſorts of leather at leaſt as well as the bark alone. When this material is got at the proper ſeaſon, it muſt be very well dried in the ſun, more than the bark alone; thence it is to be cut up and preſerved in a covered place for uſe.

When it is to be uſed, the greater wood muſt be firſt cleft ſmall, to fit it for the beating and cutting engine; and the ſmaller muſt be put into the engine as it is. Which done, it muſt be again dried upon a kiln, and after that ground in the ſame manner that the tanners grind their bark. Such wood as is to be uſed preſently after it is gotten, will require the better and the more drying upon the kiln; and, if this is omitted, it will blacken and ſpoil all the leather it is uſed about. Where oak is ſcarce, black thorn will tolerably well ſupply its place; and, where that is not to be had in ſufficient plenty, the white thorn will do.

Birch alſo, being ordered in the ſame manner with oak, is fit for ſome uſes in Tanning; particularly it does very well for Tanning the ſhoe ſoal leather. All theſe ingredients will tan much better than bark alone, and that with much leſs charge; ſo that this diſcovery may very well ſave the felling of trees,

when the bark is wanted, at a ſeaſon when the ſap is up; which, when it is done, cauſes the outſides of the trees to rot and grow worm-eaten; whereas, if the trees had been felled in winter, when the ſap is down, they would have been almoſt all heart, as the people expreſs it, and not ſubject to worms. This manner of uſing the wood with the bark, in Tanning, will alſo increaſe the value of under-woods very conſiderably.

The engine neceſſary for cutting the wood conſiſts of a long ſquare wooden block, and ſome pieces of iron to be faſtened on and uſed upon it, viz. an hammer, an anvil, an iron, holding the wood to be bruiſed and cut, and a knife to cut it. The whole is a very ſimple and cheap machine, and is deſcribed at large in the Philoſophical Tranſactions.

By Mr. De Buffon's experiments upon different ſkins, it was found that a decoction of young oak wood ſucceeded perfectly well in Tanning ſheep and calves ſkins, but did not do equally well for ox and the other harder ſkins. This, however, he imagines might be only for want of knowing the beſt method of uſing the wood. And certainly theſe trials deſerve to be farther proſecuted, ſince the ſmall branches of the oak, which are of little value, might be thus made to ſupply the place of a much dearer commodity, the bark; and, as in many trees the bark of the young branches is found to be of greatly more virtue than that of the larger branches, or the trunk, the uſe of theſe ſmall boughs, bark and all, might very probably be found to anſwer all the effects of the bark, of the larger kind alone.

TAPESTRY, is a curious kind of manufacture, ſerving to adorn a chamber or other apartment by hanging or covering the walls thereof.

It is a kind of woven hangings; of wool and ſilk frequently raiſed and inriched with gold and ſilver, repreſenting figures of men, animals, landſcapes, hiſtories, &c.

The invention of Tapeſtry ſeems to have come to us from the Levant, and this ſeems the more probable, in that the workmen concerned in it were called, at leaſt in France, Sarraſins or Sarraſinois.

It is ſuppoſed that the Engliſh and Flemiſh, who were the firſt that excelled in making Tapeſtry, might bring the art with them from ſome of the croiſades or expeditions againſt the Sarraſins.

Be this as it will, it is certain, thoſe two nations, eſpecially the Engliſh, were the firſt who ſet on foot this noble and rich manufacture in Europe, now one of the fineſt ornaments of palaces, churches, &c.

And therefore, if they may not be allowed to be the inventors, they have at leaſt the glory of being the reſtorers of this ſo curious and admirable art, as gives a kind of life to wools and

ſilks in no reſpect inferior to the paintings of the beſt maſters.

It was late before the French applied themſelves to Tapeſtry. The firſt eſtabliſhment of that kind was under Henry IV. in the year 1607, in the Fauxbourg of St. Michael: But this fell with the death of that prince. This manufacture was revived in the time of Louis XIV. by the care and addreſs of the great Monſieur Colbert, to whom the eſtabliſhment of the Gobelins is owing; a royal Tapeſtry manufacture, which has produced exquiſite works in this kind.

A manufacture of this kind was lately erected at Fulham, but it is now removed to Exeter; and, if it meets with proper encouragement, there is good reaſon to hope, we ſhall ſoon ſee pieces equal to any ever produced at the manufacture of the Gobelins.

Tapeſtry work is diſtinguiſhed by the workmen into two kinds, viz. that of the high and that of the low warp; though the difference is rather in the manner of working than in the work itſelf; which is in effect the ſame in both, only the looms and conſequently the warps are differently ſituated.

Thoſe of the low warp being placed flat and parallel to the horizon, and thoſe on the contrary of the high warp erected perpendicularly.

The Engliſh anciently excelled all the world in the Tapeſtry of the high warp, and they ſtill retain their former reputation, though with ſome little change; their low warps are ſtill admired; but, as for the high ones, they are quite laid aſide by the French.

The French have three conſiderable Tapeſtry manufactures beſides that of the Gobelins; the firſt at Aubuſſon in Auvergne, the ſecond is at Felletin in the Upper Marche, and the third at Beauvais.

They were all equally eſtabliſhed for the high and the low warp; but they have all laid aſide the high warp, excepting the Gobelins.

There are admirable low warps in Flanders, generally exceeding thoſe of France; the chief and almoſt only Flemiſh manufactures are at Bruſſels, Antwerp, Oudenard, Liſle, Tournay, Bruges, and Valenciennes.

At Bruſſels and Antwerp they ſucceed both in human figures, in animals and landſcapes; and that both with regard to the deſigns and the workmanſhip.

At Oudenard, their landſcapes and animals are good, but their human figures bad. Liſle and the other cities named come behind Oudenard.

The French manufactories of Felletin do tolerably well in landſcapes; Aubuſſon in figures; and Beauvais in both.

The

The uſual widths of Tapeſtries are from two ells to three ells Paris meaſure.

The manufacture of TAPESTRY *of the high warp.* The loom, whereon it is wrought, is placed perpendicularly: It conſiſts of four principal pieces; two long planks or cheeks of wood, and two thick rollers or beams.

The planks are ſet upright, and the beams acroſs them, one at the top, and the other at the bottom, at about a foot diſtance from the ground.

They have each their trunnions, by which they are ſuſpended on the planks, and are turned with bars.

In each roller is a groove from one end to the other, capable of containing a long round piece of wood, faſtened therein with hooks.

The uſe of it is to tie the ends of the warp to.

The warp, which is a kind of worſted or twiſted woollen thread, is wound on the upper roller; and the work as faſt as wove is wound on the lower.

Withinſide the planks, which are ſeven or eight feet high, fourteen or fifteen inches broad, and three or four thick, are holes pierced from top to bottom, in which are put thick pieces of iron, with hooks at one end, ſerving to ſuſtain the coat-ſtave: Theſe pieces of iron have alſo holes pierced, by putting a pin in which, the ſtave is drawn nearer or ſet further off; and thus the coats or threads are ſtretched or looſened at pleaſure.

The coat-ſtave is about three inches diameter, and runs all the length of the loom; on this are fixed the coats or threads, which make the threads of the warp croſs each other. It has much the ſame effect here, as the ſpring-ſtave, and treddles have in the common looms.

The coats are little threads faſtened to each thread of the warp with a kind of ſliding knot, which forms a ſort of maſh or ring. They ſerve to keep the warp open for the paſſage of broaches wound with ſilks, woollens, or other matter uſed in the piece of Tapeſtry.

In the laſt place, there are a number of little ſticks of different lengths; but all about an inch diameter, which the workman keeps by him in baſkets, to ſerve to make the threads of the warp croſs each other, by paſſing them acroſs: And, that the threads thus croſſed may retain their proper ſituation, a packthread is run among the threads, above the ſtick.

The loom being thus formed, and mounted with its warp, the firſt thing the workman does, is to draw, on the threads of this warp, the principal lines and ſtrokes of the deſign to be repreſented on the piece of Tapeſtry; which is done by applying cartoons, made from the painting he intends to copy, to the ſide

that is to be the wrong ſide of the piece, and then with a black lead pencil following and tracing out the contours thereof on the thread of the right ſide; ſo that the ſtrokes appear equally both before and behind.

As for the original deſign the work is to be finiſhed by, it is hung up behind the workmen, and wound on a long ſtaff from which a piece is unrolled from time to time, as the work proceeds.

Beſides the loom, &c. here deſcribed, there are three other principal inſtruments required for working the ſilk or the wool of the woof within the threads of the warp; theſe are a broach, a reed, and iron needle.

The broach is made of a hard wood, ſeven or eight inches long, and two thirds of an inch thick, ending in a point with a little handle. This ſerves as a ſhuttle; the ſilks, woollens, gold or ſilver to be uſed in the work, being wound on it.

The reed or comb is alſo of wood, eight or nine inches long, and an inch thick on the back, whence it grows leſs and leſs to the extremity of the teeth, which are more or leſs apart, according to the greater or leſſer degree of fineneſs of the intended work.

Laſtly, the needle is in form of the common needle, only bigger and longer. Its uſe is to preſs cloſe the wool and ſilks, when there is any line or colour that does not fit well.

All things being prepared for the work, and the workman ready to begin, he places himſelf on the wrong ſide the piece, with his back towards the deſign; ſo that he works at it were blindfold, ſeeing nothing of what he does, and being obliged to quit his poſt and go to the other ſide the loom, whenever he would view and examine the piece to correct it with his preſſing needle.

To put any ſilk, &c. in the warp, he firſt turns and looks at the deſign; then, taking a broach full of the proper colour, he places it among the threads of the warp, which he brings croſs each other with his fingers, by means of the coats or threads, faſtened to the ſtaff; this he repeats every time he is to change his colour.

Having placed the ſilk or wool, he beats it with his reed or comb; and, when he has thus wrought in ſeveral rows over each other, he goes to ſee the effect they have, in order to reform the contours with his needle, if there be occaſion.

As the work advances, it is rolled upon the lower beam; and, when he has thus wrought, they roll it upon the lower beam, and unrol as much warp from the upper beam as ſuffices them to continue the piece; the like they do of the deſign behind them.

When

When the pieces are wide, ſeveral workmen may be employed at once.

We have but two things to add; the firſt is, that this high-warp Tapeſtry goes on much more ſlowly than the low warp and takes up almoſt twice the time and trouble.

The ſecond is, that all the difference that the eye can obſerve betwen the two kinds conſiſts in this, that in the low warp there is a red fillet about one twelth of an inch broad, running on each ſide from top to bottom; which is wanting in the high warp.

The manufacture of TAPESTRY *of the low warp.* The loom or frame wherein the low warp is wrought, is much like that of the weavers; the principal parts thereof are two ſtrong pieces of wood, forming the ſides of the loom, and bearing a beam or roller at each end: They are ſuſtained at bottom with other long pieces of wood, in manner of treſsles; and, to keep them the firmer, are likewiſe faſtened to the floor with a kind of buttreſſes, which prevent any ſhaking, though there are ſometimes four or five workmen leaning on the beam at once.

The rollers have each their trunnions, by which they are ſuſtained; they are turned by large iron pins three feet long.

Along each beam runs a groove, in which is placed the wich, a piece of wood of above two inches diameter, and almoſt the length of the roller: This piece fills the grove intirely, and is faſtened therein from ſpace to ſpace by wooden pins.

To the two wiches are faſtened the two extremities of the warp, which is wound on the further roller, and the work as it advances on the nearer.

Acroſs the two ſides, almoſt in the middle of the loom, paſſes a wooden bar, which ſuſtains little pieces of wood, not unlike the beam of a balance: To theſe pieces are faſtened ſtrings, which bear certain ſpring-ſtaves, wherewith the workman, by means of two treadles under the loom, on which he ſets his feet, gives a motion to the coats, and makes the threads of the warp riſe and fall alternately.

Each loom has more or fewer of theſe ſpring-ſtaves, and each ſtave more or fewer coats, as the Tapeſtry conſiſts of more or fewer threads.

The deſign or painting the Tapeſtry-man is to follow, is placed underneath the warp, where it is ſuſtained from ſpace to ſpace with ſtrings, by which the deſign is brought nearer to the warp.

The loom being mounted, there are two inſtruments uſed in working of it, viz. the reed and the flute.

The flute does the office of the weaver's ſhuttle: It is made of a hard poliſhed wood three or four lines thick at the ends, and

and ſomewhat more in the middle, and three or four inches long. On it are wound the ſilks, or other matters to be uſed as the woof of the Tapeſtry.

The comb or reed is of wood or ivory; it has uſually teeth on both ſides; it is about an inch thick in the middle, but diminiſhes each way to the extremity of the teeth; this ſerves to beat the threads of the woof cloſe to each other, as faſt as the workman has paſſed and placed them with his flute among the threads of the warp.

The workman is ſeated on a bench before the loom, with his breaſt againſt the beam, only a cuſhion or pillow between them; and in this poſture ſeparating with his fingers the threads of the warp, that he may ſee the deſign underneath; and taking a flute, wound with the proper colour, he paſſes it among the threads, after having raiſed or lowered them by means of the treadles, moving the ſpring-ſtaves and coats.

Laſtly, to preſs and cloſe the threads of the ſilk or yarn, &c. this place he ſtrikes each courſe, i. e. what the flute leaves in its paſſing and coming back again, with the reed.

That which is very remarkable in the manufacture of the low warp, and which is common to it with the high, is, that it is all wrought on the wrong ſide; ſo that the workman cannot ſee the right ſide of his Tapeſtry, until the piece is finiſhed and taken out of the loom.

TARSO, in the glaſs trade, a ſort of white ſtone, found in many rivers of Italy, and other places, and uſed inſtead of ſand for the fineſt cryſtal glaſs, being firſt burnt and calcined with the ſalt of the polverine into frit. Neri calls this ſtone a kind of white marble; and adds a general rule, that all ſtones that will ſtrike fire with ſteel, will never vitrify.

The Tarſo therefore, of this and other authors, could be nothing of the marble kind, but is truly a cryſtalline matter, debaſed by an admixture of white earth, and found in form of ſmall pebbles, of a whitiſh, yellowiſh, or pale reddiſh colour and this is common in all the gravel-pits in England, and in the beds of ſome of our rivers; and might be uſed with great advantage by our glaſs-makers, if they knew it was ſo eaſily to be had.

On comparing theſe ſtones of ours with the cuogola or Tarſo of the foreign glaſs-makers, there is no difference diſtinguiſhable to the eye, nor will the niceſt experiments by the fire of acid menſtrua ſhew the leaſt diſtinction between them. We are not to wonder however that the glaſs-makers did not hitherto diſtinguiſh this to be true cuogola or Tarſo, ſince the characters of foſſils have been hitherto ſo little aſcertained, that the beſt and lateſt author on theſe ſubjects, Dr. Woodward, ſo far miſtook the

the ſtructure of this ſtone, as to call it a ſparry pebble. It is certain that ſpar could never have any thing to do with glaſs-making; but this ſtone has no ſpar in its compoſition.

TARTAR, a kind of ſalt, which is produced from fumous wines, which ſticks to the top and ſides of caſks, and forms a greyiſh cruſt, and hardens to the conſiſtence of a ſtone.

The goodneſs of Tartar rather depends upon repeated fermentations, which a ſucceſſion of new wines in the ſame caſk for ſeveral years makes, than on the ſoil or climate where the wine is produced.

Tartar is either white or red, according to the colour of the wine it is produced from.

That which comes from Germany is accounted the beſt, as being taken out of thoſe monſtrous tuns, ſome of which hold 1000 pipes of wine; ſo that the ſalt has time to come to its conſiſtence, which is one of the chief qualities to be regarded in Tartar.

That of Montpellier is the next in order; then that of Lyons, Paris, &c.

White Tartar is preferred, and for ſome uſes is really better: The marks of good Tartar, of either kind, are, its being thick, brittle, brilliant, and very little earthy.

Tartar is of conſiderable uſe with dyers, as it ſerves to diſpoſe the ſtuffs to take the colours the better.

Salt of TARTAR, is made of Tartar waſhed, ground, purified, and calcined in paper by a reverberatory fire; or it is made by pulveriſing what remains in the retort, after the diſtillation of Tartar. On the one or the other of theſe preparations, they pour a great quantity of hot water to make a ley of it; this they filtrate, and evaporate the liquor by a ſand-heat, until the fixed ſalt be found at the bottom of the veſſel: This is the alcali or fixed ſalt of Tartar.

The way of making a very fine and pure ſalt of TARTAR. Neri makes uſe of no ſalt of Tartar in all his preparations of artifical gems; notwithſtanding, this ſalt being prepared after a certain way, we ſhall here relate it for the ſake of the curious. It ſerves in a great meaſure to work the cryſtal, being a true vehicle for the better introducing the colours that are to be given, and which is of uſe for the tinctures ſeveral ways.

Thoſe, who in the operations of artificial gems have made no uſe of ſalt of Tartar, have without doubt been ignorant of this fine preparation of it; for, if you uſe ordinary ſalt of tartar, there is a ſulphur and foulneſs in it, which renders cryſtal obſcure, and conſequently would be hurtful in theſe operations.

To make this ſalt, you muſt calcine your Tartar until it becomes grey, and not to perfect whiteneſs, and then diſſolve it in

in warm water to extract the ſalt; filtre that water, and then evaporate it over the fire; then you will have remaining at the bottom of the veſſel a white ſalt.

To take away all foulneſs from the ſalt, diſſolve it again in warm water, then evaporate it again over a gentle fire, take it off the fire, and caſt it into cold water, and you will find it will leave on the ſurface of the water a thick froth, which you muſt ſkim off with a ſkimmer, that has little holes no bigger than a ſmall pin's head; put the veſſel again on the fire, and evaporate the water as before; then take it off the fire, and caſt upon it freſh cold water, and ſkim it well as before; reiterate this proceſs until you find no more froth, then evaporate the whole over a gentle fire until it be dry, and you will have a ſalt of Tartar well purified, which is not ſo fuſible as the other, becauſe it is free from all that unctuoſity which cauſes the fuſion.

Keep this ſalt of Tartar in a veſſel well ſtopped, and uſe of it in cryſtal with your colours, when you ſet them to melt.

Although this ſalt of Tartar be very fine and pure, yet it is not that of the philoſophers, which has far more virtue, and opens more powerfully the metals and minerals where it is employed, though it be of the ſame nature as this, and extracted from the ſame principal.

TAWING, is the art or manner of dreſſing ſkins in white, to fit them for uſe in divers manufactures, particularly gloves, &c. as chiefly thoſe of lamb, ſheep, kids, goats, &c.

Having cleared the ſkins of wool or hair by the means of lime, &c. as is deſcribed in the article SHAMMY, they are laid in a large vat of wood or ſtone, ſet on the ground full of water, in which quick-lime has been ſlacked; in this they are to lie for a month or ſix weeks, as the weather is more or leſs hot, or as the ſkins are required to be more or leſs ſoft and pliant.

While they are in the vat, the water and lime is changed twice, and the ſkins are taken out and put in again every day.

When they are taken out for the laſt time, they are laid all night to ſoak in a running water, to get out the greateſt part of the lime; and in the morning are laid together by ſixes one upon another, upon the wooden leg, and are ſcraped ſtoutly one after another, to get the fleſh off from the fleſhy ſide, with a cutting two-handed inſtrument called a knife; and then they cut off the legs, if they are not cut off before, and other ſuperfluous parts about the extremes.

Then they are laid in a vat or pit with a little water; where they are well fulled with wooden peſtles for the ſpace of a quarter of an hour, and then the vat is fil'ed up with water, and they are rinſed in it,

In

In the next place they are thrown on a clean pavement to drain; and afterwards caſt into a freſh pit of water, out of which they rinſe them well; and are laid again on the wooden leg ſix at a time with the hair ſide outermoſt, over which they rub a kind of whetſtone very briſkly to ſoften and fit them to receive four or five more preparations, given them on the leg, both on the fleſh ſide and the hair ſide, with the knife, after the manner above-mentioned.

After this they are put into a pit of water and wheaten bran, and ſtirred about in it with wooden poles, till the bran is perceived to ſtick to them; and then they are left: As they riſe of themſelves to the top of the water by a kind of fermentation, they are plunged down again to the bottom; and at the ſame time fire is ſet to the liquor, which takes as eaſily as if it were brandy, but goes out the moment the ſkins are all covered.

They repeat this operation as often as the ſkins riſe above the water; and, when they have done riſing, they take them out, lay them on the wooden leg, the fleſhy ſide outwards, and paſs the knife over them to ſcrape off the bran.

Having thus cleared them of the bran, they lay the ſkins in a large baſket, and load them with huge ſtones to promote their draining; and, when they have drained ſufficiently, they give them their feeding, which is performed after the manner following:

For one hundred of large ſheep-ſkins, and for ſmaller in proportion, they take eight pounds of alum, and three of ſea-ſalt, and melt the whole with water in a veſſel over the fire, pouring the diſſolution out, while yet lukewarm, into a kind of trough, in which are twenty pounds of the fineſt wheat flower, with the yolks of eight dozen of eggs; of all which is formed a kind of a paſte, a little thicker than children's pap; which, when done, is put into another veſſel to be uſed in the following manner:

They pour a quantity of hot water into the trough, in which the paſte was prepared, mixing two ſpoonfuls of the paſte with it; to do which they uſe a wooden ſpoon, which contains juſt as much as is required for a dozen of ſkins: And when the whole is well diluted two dozen of the ſkins are plunged into it; but they take care that the water be not too hot, which would ſpoil the paſte, and burn the ſkins.

After they have lain ſome time in the trough, they take them out one after another with the hand, and ſtretch them out; this they do twice; and, after they have given them all their paſte, they put them into tubs, and there full them afreſh with wooden peſtles.

Then they put them into a vat, where they are ſuffered to lie for five or ſix days, or more; then they take them out in fair weather, and hang them out to dry on cords or racks, and the quicker

quicker they are dried the better it is; for, if they be too long a drying, the ſalt and alum within them are apt to make them riſe in a grain, which is an eſſential fault in this kind of dreſſing.

When the ſkins are dry, they are made up into bundles, and juſt dipped in fair water, and taken out and drained, and being thrown into an empty tub, and after having lain ſome time, are taken out, and trampled under foot.

Then they draw them over a flat iron inſtrument, the top of which is round like a battledore, and the bottom fixed into a wooden block, to ſtretch and open them; and, having been opened, they are hung in the air upon cords to dry; and, being dry, they are opened a ſecond time, by paſſing them again over the ſame inſtrument.

In the laſt place they are laid on a table, pulled out, and laid ſmooth, and are then fit for ſale.

After the ſame manner are dreſſed horſes, cows, calves, ſkins, &c. for the ſaddlers, harneſs-makers, &c. as alſo thoſe of dogs, wolves, bears, &c. except that in theſe they omit uſing the paſte, ſalt and alum water being ſufficient.

To dye ſtuff a brown or TAWNY. Put a handful of madder into a kettle of hot water, ſtir it very well about, and let it ſtand and ſettle a while; moiſten the ſtuff with it, then roll it up, and put it into the kettle upon the roll; and, when you find that the colour does no longer fall upon it, then add to it two handfuls of madder, and let it cool; and, when you perceive it to be boiled to a half red colour, throw in a pailful of the black dye into the madder ſuds, ſtir them together, and make a wood fire under the kettle: For, having its proper heat, it turns the better to brown; and, if it be not dark enough, throw in another pail of the black dye, or more, until it becomes of the colour you would have it; then work the ſtuff in it very well upon, or with, the roller, to hinder it from ſpotting.

A deep TAWNY. Let the ſtuffs be firſt dyed a madder red, then take the dye off the fire, and put a quart of black dye into it for every pound of ſtuff; heat it, and put the ſtuffs into it, and work it ſo long until it hath taken the dye ſufficiently; then cool it, and it will be a laſting dye.

To dye a crimſon TAWNY *with cochineal.* Alum and prepare the ſilk as for crimſon, then fill a clean kettle with fair water, and ſome blue wood ſuds, of each a like quantity; and then for every pound of ſilk put in one ounce of galls and one ounce and an half of cochineal; and, afterwards, having firſt rinſed the ſilks, put them in, ſtir them about carefully to prevent their being variegated or ſpotted; becauſe the Provence wood ſuds are apt to ſpot, if they be not violently ſtirred; let the ſilk lie one whole night in the ſuds, then rinſe it out and dry it.

To

To dye ſilk a crimſon deep TAWNY. Firſt prepare the ſilks, as directed for crimſon; put a ſufficient quantity of liquor into a clean kettle, and for every pound of ſilk put in one pound of madder, one pound of galls, and half a pound of blue wood; and boil them together with the ſilk for an hour, putting the wood into a bag to prevent its hanging in the ſilk. Let the ſilk lie a whole night in the liquor, in the morning take it out, wring it, rinſe it, and beat it well, then rinſe it again; and afterwards beat and dry it.

TAX, is repreſented, in painting, &c. by a luſty young man with an oaken crown, in his right hand a pair of ſhears, a ſheep at his feet; in his left hand ears of corn, an olive-branch, and a bunch of grapes hanging down, without breeches, his arms and legs bare, the ſoles of his feet callous.— He is robuſt, becauſe Taxes are the nerves of the commonwealth; the oaken crown denotes his ſtrength; the ſhears allude to the ſaying, It is the part of a good ſhepherd to ſhear the ſheep, and not to flay them; the things in his hand ſhew, that Taxes are laid upon thoſe that Taxes ſhould be levied upon, not for mere covetouſneſs, but for the public weal, without any other deſign.

TEINTS, and *ſemi-teints*, in painting, are the ſeveral colours uſed in a picture, conſidered as more or leſs high, or bright or deep, or thin or weakened, or diminiſhed, &c. to give the proper relievo or ſoftneſs, or diſtance, &c. of the ſeveral objects.

TELLUS, the goddeſs of the earth, is repreſented, in painting, cloathed in a green mantle.

TEMPERANCE, is repreſented, in painting, &c. by a gentlewoman, holding a bridle in one hand, and the ſtay of a clock in the other, an elephant by her.— The bridle and ſtay denote the buſineſs of Temperance to bridle and moderate the appetite and inordinate paſſions, as time ſerves; the elephant, becauſe it has once been accuſtomed to a certain quantity of meat, it never exceeds, but keeps ſtrictly to that, and will eat no more.

TEMPERING ſteel and iron, is a preparing them, in order to render them either more compact, hard, and firm, or more ſoft and pliant, according as the uſes of them ſhall require: Theſe metals are tempered by plunging them, while red-hot, in ſome liquor prepared for the purpoſe; ſometimes, in pure water, as lockſmiths, &c. which ſeldom uſe any other.

And ſometimes a compoſition of divers juices, liquors, &c. is uſed; which is various according to the manner and experience of the workman, as vinegar, mouſe-ear water, the water oozing from broken glaſſes, ſoot, ſalt, oil, &c.

To harden and temper Engliſh, Flemiſh, and Swediſh ſteel, they muſt have a pretty high heat given them, and then be ſuddenly quenched in water to make them hard: But Spaniſh and

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Venetian ſteel will require no more than a blood-red heat before it is quenched.

If the ſteel be too hard or brittle for an edged tool, &c. take it down by rubbing a piece of grind-ſtone or whet-ſtone hard upon the work, to take off the black ſcurf; then brighten or heat it in the fire, and as it grows hotter you will ſee the colour change by degrees, coming firſt to a ſtraw or light goldiſh colour, then to a darker goldiſh colour, and at laſt to a blue colour.

Chuſe ſuch of theſe colours as the work requires, then quench it ſuddenly in the water.

The light gold colour is for files, cold chiſſels, and punches to punch iron and ſteel: The dark goldiſh colour for punches to uſe on braſs, &c. the blue colour gives the temper for ſprings.

The Tempering of files and needles is performed after a peculiar manner.

The ancients appear to have had ſome better method of Tempering, than any of the moderns are acquainted withal; witneſs their works in porphyry, a ſtone ſo hard that none of our tools make an impreſſion upon it.

Antonio TEMPESTA, born in the year 1555, ſcholar of John Strada, a Fleming, lived at Rome, excelled in battles and hunting-pieces; died in the year 1630, aged ſeventy-five years.

TERM, } is a kind of ſtatue or column, adorned at the
TERMINUS, } top with the figure of a man's, woman's, or ſatyr's head as a capital, and the lower ending in a kind of ſheath or ſcabbard.—Theſe are ſuppoſed to have taken their name from the Roman deity Terminus, whom they eſteemed as the protector of land-marks, whoſe ſtatue, made without either hands or feet, that he might not change his place, was wont to be ſet up at the bounds of lands to ſeparate them.

Theſe are alſo by ſome called Thermes, and derived from Hermes, a name given by the Greeks to the god Mercury, who, as they believed, preſided over the highways; whoſe ſtatue, made in the form before-mentioned, was erected in ſeveral croſs-ways in the city of Athens, &c.

TERROR, when it is exceſſive, cauſeth the eye-brow to be very much raiſed in the middle; and the muſcles, which perform the motion of theſe parts, very much marked and ſwelled, and preſſed one againſt another, being drawn down over the noſe, which will ſeem to be drawn up, as alſo the noſtrils.

The eyes ought to appear intirely open, the upper eye-lid hid under the brow; the white of the eye ought to be environed with red; the eye-ball as it were wandering, and ſituated nearer to the lower part of the eye than the upper; the lower parts of the under eye-lids ſwelled and livid.

The muſcles of the noſe and the hands alſo ſwelled; the muſcles

cles of the cheeks extremely marked, and drawn into a point on each ſide of the noſtrils.

The mouth muſt be very open, and the corners very apparent.

Every thing muſt be very much marked about the forehead and eyes; the muſcles and veins of the neck muſt be very much raiſed and apparent; the hair ſtanding up an end, the complexion pale and livid, and more eſpecially the end of the noſe, the lips, ears, and about the eyes.

If the eyes appear extremely open in this paſſion, it is becauſe the ſoul makes uſe of them to obſerve the nature of the object, which cauſes the fright.

The eye-brow drawn down at one end, and raiſed at the other, makes is appear, that the part raiſed ſeems as if it would be joined to the brain, to ſecure it from the ill which the ſoul apprehends; and by the end which is drawn downwards, and appears ſwelled, we find that in this condition the ſpirits come plentifully from the brain, as it were to cover the ſoul, and defend it from the ill which it fears.

The openneſs of the mouth indicates, that the heart is oppreſſed by the blood, which is retired towards it; which obliges him that is poſſeſſed with this paſſion, when he would breathe, to make an effort, which cauſes the mouth to open wide; and which, in paſſing by the organs of the voice, makes a kind of inarticulate ſound.

Terror hath a great many of the motions of horror, but they ought to appear greater and more extended; the arms ſtretched out ſtraight forward, the legs in an action of flying with all their force, and all the parts of the body in diſorder. See plate XVI.

TE *or* **TP** *Peter* TESTA, of Lucca, a painter and copious engraver, born in the year 1611, ſcholar of Dominichino, and Peter Cortona, lived at Rome, excelled in hiſtory, died in the year 1650, aged thirty-nine, uſed theſe two marks.

THEFT, repreſented, in painting, &c. by a pale youth, cloathed in a wolf's ſkin, his arms and legs bare, with winged feet at midnight; in one hand a purſe, a knife in the other with a picklock; the ears of a hare, and ſeems to be in fear.—Youth ſhews imprudence, that will not take warning; the paleneſs and hare's ears, continual ſuſpicion and fear, and therefore it loves darkneſs; the ſkin, becauſe the wolf lives by rapine; the barrenneſs ſhews him in diſtreſs; and the winged feet his flying from juſtice.

THEOLOGY, is repreſented, in painting, &c. by a lady with two faces unlike one another, looking with the youngeſt

towards heaven, with the old face towards the earth; ſits upon a globe full of ſtars, her right hand on her breaſt, her left towards the earth, holding up her train, a wheel by it.—The wheel denotes divinity not touching the earth, but by its circumference; ſo ſhould a divine keep himſelf unſpotted from the world; ſitting upon a globe ſhews, that divinity repoſes in no inferior thing; her hands, gravity; the ſkirt of her garment ſhews, that ſome part of divinity extends to low things, though neceſſary.

THEORY, is repreſented, in painting, &c. by a young woman looking upwards, her hands claſped together, a pair of compaſſes on her head, nobly clad in purple, ſeeming to deſcend the ſtairs.—The colour of her garment ſhews, that the ſky terminates our ſight; her face, that the intellect is taken up in celeſtial things; the ſtairs, that things intelligible have order, proceeding by degrees from things near to things afar off; the compaſſes are the moſt proper inſtrument for meaſuring, which perpetuate the name of an author.

THETIS, a ſea goddeſs, is repreſented, in painting, &c. as a lady of a brown complexion, her hair diſhevelled, adorned with a coronet of periwinkle and eſcallop ſhells, clad in a mantle of a ſea-green colour, adorned with bracelets of amber about her neck and arms, and holding in her hand a branch of coral.

Pellegrino TIFALDI, called otherwiſe *Pellegrino da Bologna*, born in the year 1522, ſcholar of Dan. da Volterra, lived at Bologna, Rome, and Milan; excelled in hiſtory and architecture; died in the year 1592, aged ſeventy years.

Henry TILSON, was an Engliſh face-painter of good note, born in London; after he had been inſtructed for ſome time by Sir Peter Lely, in the nature of face-painting, he travelled into Italy, where he ſtaid ſix or ſeven years; and, during that time, he copied, with wonderful care and exactneſs, a great number of pictures of the beſt maſters; by which means, at his return to England, he became not a little famous in the portrait way.

He had alſo a particular genius for crayons, in which he performed admirably well, after the pictures of Corregio, Titian, and the Caracci, while he was at Rome. He died at thirty-ſix years of age, and lies buried in St Clement's.

TIMBER *work*.—The manner of colouring all manner of Timber work, as wainſcot, doors, windows, poſts, rails, pales, gates, border-boards for gardens, &c. which require either beauty or preſervation from the violence of rain, or injury of weather, is as follows:

Suppoſe there be a ſet of paliſadoes, or a pair of gates, or ſome poſts and rails to be painted in a ſtone colour.

Firſt, look over the work, and take notice whether the joints

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be open in the gates, or whether there be any large clefts in the poſts; for, if theſe are not ſecured, the wet will inſinuate itſelf into thoſe defects, and make the quicker diſpatch in rotting the whole work.

Therefore, the firſt thing to be done, is to ſtop up thoſe clefts, &c. ſmooth and even, with a ſubſtance which painters call putty, which is made of whiting and linſeed oil, well beaten together on a grinding ſtone, or with a wooden mallet, to the conſiſtence of a very thick dough; and with this let all the crannies, clefts, and other defects, be well filled up, ſo that it may be equal to the ſurface or outſide of the things to be painted.

Then prime the work with Spaniſh brown well ground, and mixed very thin with linſeed oil; with this do over the work, giving it as much oil as it will drink up; this, in about two days, will be indifferent dry. Then, if you would do the work ſubſtantially, do it again with the ſame priming colour; when it is thorough dry, take white lead, well ground and tempered with linſeed oil, but not too thin; for the ſtiffer you work it, if it be not too ſtiff, the better body will be laid on, and the longer it will laſt: Rub this colour on well with a large briſtle bruſh, that the whole ſurface of the work be ſo intirely covered, that no crack nor corner may remain bare; which may be eaſily done, by jobbing in the point of a briſtle bruſh.

Let this firſt colouring dry, and then go over it a ſecond time; and, if you pleaſe, a third alſo; the charge will be but little more, but the advantage will be great in the duration.

This courſe is ſufficient for every kind of Timber work, which requires only a plain colour, whether you cover the work with a ſtone colour, or elſe with a Timber colour with umber and white, or a lead colour with indigo and white.

Some lay over their work only a coat of Spaniſh brown, by tempering it up more ſtiff than was done for the two firſt primings; which, in ſome reſpects, is the cheapeſt way of all, and preſerves the Timber perhaps as well as any.

Note, If, when you have made uſe of your colours, there be occaſion for a ſmall ceſſation, until the work be finiſhed; in this caſe, you muſt cover the colour that remains in the pot with water, which will prevent its drying and ſkinning over.

And the pencils alſo, or bruſhes, ſhould be waſhed out in clear linſeed oil, and then in warm ſoap-ſuds; for if either oil, or colours, be once dried in the bruſh or pencil, they are ſpoiled for ever.

It has been obſerved, that Timber laid over with white, when it has ſtood ſome time in the weather, the colour will crack and ſhrink up together, juſt as pitch does, if laid on any thing that ſtands in the ſun. The cauſe of this is, that the colour was laid

on with too ſtiff a body; for, being wrought too thick once, it will dry with a ſkin on the outſide, which will keep the inſide moiſt, and prevent its binding firm, from whence thoſe cracks proceed.

Of out-door painting in general. Doors, ſhop-windows, window-frames, pediments, architraves, friezes, corniches, and all other Timber works, that are expoſed to the weather, ought at firſt ſetting up to be primed with Spaniſh brown, Spaniſh white, and red lead, about a fifth, to cauſe the other two colours to dry.

Theſe, being well ground with linſeed oil, will make a very good primer; then afterwards with the ſame colour, but whiter, for a ſecond primer; and laſtly, with a fair white made of white lead, and about a fifth part in quantity, not in weight, of Spaniſh white.

Now he that is able to bring the work thus far on, has proceeded to the higheſt pitch of that vulgar painting, that aims at preſervation beyond beauty, though ſomething of beauty is neceſſarily included in this alſo. But this is not all, for he that is arrived thus far, is in a fair way to other perfections in the art of painting; but for the pannelling of wainſcot with its proper ſhadows, and for imitating olive and walnut wood, marbles, and ſuch-like, theſe muſt be attained to by ocular inſpection, it being impoſſible to deliver the manner of the operation by precept, without example: And I am bold to affirm, that a man ſhall gain more knowledge by one day's experience, than by an hundred ſpent to acquire it ſome other way.

I adviſe therefore all thoſe, that deſire an inſight into the buſineſs, to be a little curious, if opportunity offers, in obſerving the manner of a painter's working, not only in grinding his colours, but alſo in laying them on, and working in them; in all theſe obſerving the motion of his hand in the manage of any kind of tool: And by this means, with a little imitation, joined to the directions here given, I doubt not, but in a ſhort time, you may arrive to great proficiency in the buſineſs of vulgar painting.

Take notice, that if you ſhall at any time have occaſion to uſe either bruſhes that are very ſmall, or pencils, as in many caſes there will be occaſion; you ought then to diſpoſe of the colours you uſe upon a pallet, and then work and temper them about with your pencil, that the pencil may carry away the more colour: For you are to note, that, if a pencil be only dipped in a pot of colour, it brings out no more with it than what hangs on the outſide, and that will work but a little way; whereas, if you rub the pencil about in the colour, on the pallet, a good quantity of colour will be taken up in the body of the pencil; and, beſides all this, you may work your pencils better to a point

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on a pallet, than you can do in a pot; the point of a pencil being of great uſe in divers caſes, eſpecially in drawing of lines.

TIME, is drawn ſtanding upon an old ruin, winged, and with iron teeth. Or thus; as an old man cloathed in a garment of ſtars, having upon his head a garland of roſes, ears of corn, and dry ſticks, ſtanding upon the zodiac, holding a looking-glaſs in one hand, and having two children at his feet, the one fat, and the other lean, both writing in one book; upon the head of one is the ſun, and upon the other the moon.

It is alſo repreſented by an old man, bald behind, winged, with a ſcythe and an hour-glaſs, having a lock of hair on his forehead, but bald behind.

TIN, is a whitiſh metal, ſofter than ſilver, yet much harder than lead.

Several, both chymiſts and others, account Tin an imperfect metal, generated of two different ſeeds, viz. that of ſilver and that of lead, which renders it a kind of compound of both; and accordingly it is frequently found in both lead and ſilver mines.

But Tin has its proper mines, of which our counties of Cornwal and Devonſhire are a ſufficient proof; the greateſt part of the Tin conſumed in Europe being got out of them.

The principal characters, or properties of Tin, as they are enumerated by M. Boerhaave, are, that it is the lighteſt of all metals, very little ductile or elaſtic; the moſt fuſible and volatile of all metals, ſcarce diſſolvable by acids, unleſs by thoſe of the weaker ſorts; and eaſily and intimately miſcible with other metals, the ductility of which becomes diminiſhed by ſuch a mixture.

The ſame author concludes, that ſulphur is a prevailing ingredient in Tin, and deduces ſeveral of its properties therefrom. He likewiſe adds, that, could the metal be purged of this heterogeneous ſulphur, it it probable it would be found no other than ſilver.

The method of getting, preparing, &c. TIN, *in the Corniſh mines.*— The working of the Tin mines is very hard and difficult; not only by reaſon of the great depth, which the veins deſcend to, even as low as fifty fathom; but alſo becauſe the rocks, through which paſſages are frequently to be cut, are often ſo hard, that the workman cannot dig a foot in a week.

Nor is the ſoft ſhaking earth found in Tin mines much leſs inconvenient to the workmen, both by reaſon of fœtid, malignant vapours it exhales, and of the currents of water often met with therein: All theſe diſadvantages together render it impracticable for the workmen to hold it above four hours together.

The mineral ſtones, or glebe, being dug and drawn out of the mine, is there broke to pieces with large iron mallets; then

brought to a ſtamping-mill, where it is pounded ſmaller with ſtampers, like thoſe of paper-mills; and the water, paſſing thro' it, waſhes away the earthy parts, leaving the metallic ones behind. This lotion, or waſhing, is repeated twice to make the better ſeparation.

When this has been done, they dry it in a furnace on iron plates, and afterwards grind it very fine in a craſing mill; then they waſh it again, and then dry it: And in this ſtate the metallic matter is called block or black Tin.

To convert it into Tin, i. e. into white Tin, they carry it to a furnace or blowing-houſe; where, by means of a charcoal fire, kept up with huge bellows, worked with water, it is melted. After it has paſſed all theſe preparations, and is grown cold, they forge it, which is the laſt thing done to it in the works.

The droſs, or ſcoria, being ſcummed off, and the tin in fuſion, and being melted down with freſh ore, runs into metal, and even the cauſalty, i. e. the matter waſhed and ſeparated from the metal in the mill, being thrown up in heaps, after reſting ſix or ſeven years, they fetch it over again, and it yields as good Tin as any of that in Germany.

The workmen diſtinguiſh ſeveral kinds of Tin, as moor Tin, which is the beſt ſort, a foot of which weighs eighty pounds; and mine Tin, which is the next, a foot of which weighs fifty-two or fifty pounds. The Tin got from the ſoft gravelly earth they call pryan Tin, to diſtinguiſh it from that got from the ſtones, which is better by almoſt half.

Two pounds of black Tin, when melted, make about one of white.

The method of aſſaying TIN.—To find whether Tin be ſoft and ductile, or harſh and brittle, there are two kind of aſſays: The firſt is by putting the Tin into a hot braſs mould, and there melting it.

If the metal be harſh, it will be heavier when it comes out than when it went in, otherwiſe it will be lighter.

The ſecond is, by caſting the melted Tin into a little mould made of thunderſtone.

This mould has a little canal of a moderate length, which conducts the matter into a cavity, capable of containing half a billiard ball; if the Tin be harſh, it will appear whitiſh towards the entry of the mould, otherwiſe it is tinged ſuperficially of a very faint bluiſh brown.

To colour TIN *or copper of a gold colour.*—Set linſeed oil on the fire, ſcum it well, and put in amber and hepatic aloes, of each a like quantity; ſtir them well together till it grows thick; then take it off, cover it cloſe, and ſet it in the earth for three days: When

When you uſe it, ſtrike the metal all over with it with a pencil-bruſh, let it dry, and it will be of a golden colour.

To take away the ringing and ſoftneſs of TIN.—Melt the Tin, and caſt in ſome quickſilver, remove it from the fire, and put it in a glaſs retort, with a large round belly, and a very long neck; heat it red-hot in the fire, until the mercury ſublimes, and the Tin remains at the bottom: Do this three or four times.

The ſame may be done by calcining it three or four times, by which means it will ſooner be red-hot than melt.

To take away the ſoftneſs of TIN. You may effect this by granulating it often, and then reducing it again, and quenching it often in vinegar, and a lixivium of ſalt of tartar.

To take away the dead ſound of TIN. Diſſolve it in aqua-fortis over a gentle fire, until the water fly away; doing thus ſo long, until it is all turned to a calx, which being mixed with calx of ſilver, and reduced, performs the work.

To prevent TIN *from cracking.* Take ſalt and honey, of each a like quantity, and mix them, melt the Tin, and put it twelve or more times into it, then ſtrain out the Tin, and it will purge and leave cracking; put it into a crucible, lute it, and calcine it twenty-four hours, and it will be like calx of gold.

To make a kind of counterfeit ſilver of TIN. Mingle ſilver with Tin melted with quickſilver, keeping it a long time in the fire; then being brittle it is made tough by keeping it in a gentle fire, or under hot embers, in a crucible, for about twenty-four hours.

TIN *glaſs*, a mineral matter, white, ſmooth, and as to appearance reſembling Tin; but hard, ſharp, brittle, and diſpoſed into ſhining ſcales, as it were pieces of glaſſes, whence it took its name. It is the ſame that is called biſmuth.

TINNING, is the covering or lining any thing with melted Tin, or with Tin reduced to a very fine leaf.

Sauce-pans, and other kitchen utenſils, are tinned with melted tin; and locks, bits, ſpurs, &c. with leaf tin, by the help of fire.

Looking-glaſſes are foliated or tinned with thin ſheets of beaten tin; the whole bigneſs of the glaſs, applied and united to it by means of quickſilver.

Plumbers uſe to tin or whiten their ſheets of lead; in order to which, they have a Tinning furnace, filled with live coal, at the two ſides of which two men are placed, who hold up the ſheets over the fire to heat; and the tin leaves being laid over them, as faſt as the ſheets grow hot, and the tin melts, they fix it on by rubbing and ſtretching it with tow and roſin.

Giacomo Robuſti, called TINTORETTO, born in the year 1512, ſcholar of Titian, ſtudied Michael Angelo for deſign, lived at Venice, excelled in hiſtory and portraits; died in 1594, aged eighty-two years.

TOPAZ, a precious ſtone, eſteemed of the third order after the diamond. It is of a beautiful yellow, or gold colour, tranſparent, very hard, and takes a fine poliſh.

It is found in Bohemia, ſeveral parts of the Indies, Ethiopia, Arabia, and Peru, and is the true chryſolite of the ancients.

Thoſe of Bohemia are yellow and a little blackiſh, the ſofteſt of all, and their poliſh the coarſeſt.

Thoſe of Peru are ſofter than the oriental ones, but their colour is much the ſame; the colour of the oriental ones border upon the orange, and they are the moſt eſteemed; thoſe of Madagaſcar were formerly valued, but are now accounted good for little.

The Topaz is eaſily counterfeited, and there may be counterfeit ones made, which to the eye will not come behind the natural ones.

To make an oriental TOPAZ. Take natural cryſtal and ſaturnus glorificatus ten ounces, of very good orpiment one ounce, reduced to fine powder: After having mixed them well together, put them into a crucible, covered with another, which lute and dry well; then put it into a glaſs-houſe furnace for three hours, and then let it cool gently in the annealing furnace. Having taken your matter out of your crucible, you may cut and poliſh it as you pleaſe, and you will have a very fine oriental Topaz.

TOREUMATOGRAPHY, a term of art derived from the Greek, and uſed to ſignify the knowledge, or rather the deſcription of ancient ſculptures and baſſo-relievo's.

TOREUTICE, a Greek term, uſed to ſignify that part of ſculpture, commonly called Turning.

TORTOISE *ſhell*, is the ſpoils or cover of a teſtaceous animal, uſed in inlaying, and various other uſes, as ſnuff-boxes, combs, and other utenſils.

There are two kind of Tortoiſes, viz. land and ſea.

The ſea Tortoiſe again is of four kinds, viz. the freſh Tortoiſe, the caret, the cahohanna, and the lager-hu: But it is the caret alone, that furniſhes that beautiful ſhell ſo much admired in Europe.

The ſhell of the caret is thick, and conſiſts of two parts; the upper, which covers the back; and the lower the belly: The two are joined together at the ſides by ſtrong ligaments, but yet allow of a little motion.

In the fore-part is an aperture for the head and legs, and behind for the hind legs and tail.

It is the under ſhell alone is uſed: To ſeparate it from the upper, they make a little fire beneath it, and as ſoon as ever it is warm the under ſhell becomes eaſily ſeparable from the upper with the point of a knife, and is taken off in laminæ, or leaves, without

without killing the animal, which it is ſaid, being turned to ſea again, gets a new ſhell.

The whole ſpoils of the caret conſiſt in thirteen leaves, eight of them flat, and five a little bent; of the flat ones, there are four large ones, about a foot long, and ſeven inches broad.

The beſt ſhell is thick, clear, tranſparent, of the colour of antimony, ſprinkled with brown and white.

When it is uſed in marquetry, or inlaid work, workmen give it what colour they pleaſe, by means of coloured leaves of metal, which they put underneath them.

To counterfeit TORTOISE *ſhell.* In order to perform this well, let the wood you intend to work on be very cloſe-grained, clean, and ſmooth wrought off, as pear-tree or the like; but, if it be rough-grained, it muſt have a ground of ſize and whiting, as is done in rough japanning for coarſe-grained woods; ruſh it ſmooth, and go over it with ſeed-lac varniſh, the breadth of a ſilver leaf, which take up with cotton, and lay on it moiſt as cloſe as may be; then waſh again, and lay on another leaf of ſilver, and ſo continue to do, until you have laid the wood all over with ſilver, and when it is dry ſweep off all the looſe ſilver with a hair bruſh. Then grind Cologn earth very fine, and mix it with gum water and common ſize; and with this having added more ſize or gum water than it was ground withal, ſpot or cloud the ground-work, having a fine true natural ſhell by you to imitate; and, when this is done, you will perceive ſeveral reds, lighter and darker, appear on the edges of the black, and many times lie in ſtreaks, on the tranſparent part of the ſhell. To imitate this finely, grind ſanguis draconis with gum water, and with a fine pencil draw thoſe warm reds, fluſhing it in about the dark places more thick; but fainter and thinner, and with leſs colour, towards the lighter parts, ſo ſweetening it, that it may in a manner loſe the red, being ſunk in the ſilver or more tranſparent parts.

When it is done and dried, give it at leaſt ſix waſhes of ſeed-lac varniſh; and, twenty-four hours after, ruſh it gently; and, when it is ſmooth and fit for the ſecond operation, grind gamboge very fine, and put it into as much ſeed-lac varniſh as will waſh it ſix times more, and let it ſtand twelve hours, and give it the third varniſhing; and with the laſt mixture waſh it ſo often, that the ſilver is changed to a golden colour, and the work is finiſhed.

TRACING, is repreſented, in painting, &c. by a woman, her head winged, her garment ſpread all over with ants, holding up her right arm; and with her fore-finger, with which ſhe points at a crane; and with her other fore-finger, a hound full ſcent after his game.— The wings denote elevation of intellect,

the

the ants always ſearching out what is moſt convenient for their livelihood; the crane, an inquiſitive man, that would inveſtigate ſublime things at a diſtance.

TRAGACANTH, } a kind of gum, oozing out at inciſions,
ADRACANTH, } made in the trunk and larger branches of a plant, or little ſhrub of the ſame name.

Mr. Tournefort tells us, the naked hillocks of mount Ida in Candia produce a deal of the plant Tragacantha, which gives the gum ſpontaneouſly towards the end of June, and in the following months; when the nutritious juice of the plant, thickened by the heat, burſts moſt of the veſſels it is contained in.

This juice coagulates in threads, which make their way into the pores of the bark; where being puſhed forwards by new juice, they get through the bark, and are at length hardened in the air, either into little lumps, or into twiſted pieces, in form of little worms, longer or ſhorter, according to the matter of which they are formed.

This plant grows alſo in ſeveral places of the Levant, particularly about Aleppo.

The gum is of different colours and qualities; ſome being white, others greyiſh; ſome red, and ſome almoſt black; but the white is the beſt.

It ſhould be choſen clear, ſmooth, and twiſted, like little worms.

TRAGEDY, is repreſented, in painting, &c. by a gentlewoman all in mourning, a bloody dagger in her right hand, by her on the ground a garment of cloth of gold, and divers precious jewels, ſhe being ſhod with cothurni.—The mourning ſuits beſt with Tragedy, containing nothing but the ruin of princes by violent death, which is demonſtrated by the bloody dagger; the cothurni, or ſocks, were worn by princes, to diſtinguiſh them from peaſants; they ſhew that Tragedy requires gravity and conception, neither mean nor trivial.

TRANSPARENCY, is a quality in certain bodies, whereby they give paſſage to the rays of light.

To make the ſilver TREE *of the philoſophers.* Take aqua-fortis four ounces, fine ſilver one ounce, which diſſolve in it; then take aqua-fortis two ounces, in which diſſolve quickſilver; mix theſe two liquors together in a clear glaſs, with a pint of pure water; ſtop the glaſs cloſe, and after a day you will perceive a tree to grow by little and little, which is wonderful and pleaſant to behold.

To make the golden TREE *of the philoſophers.* Take oil of ſand, or flints, and oil of tartar per deliquium, of each a like quantity. mix them well together; then diſſolve gold in aqua-regia, and evaporate the menſtruum; dry the calx by the fire, but make it not

not too hot, for then it will loſe its growing quality; break it into little bits, but not reduce it into powder; which bits put into the aforeſaid liquor, a finger's breadth one from another, in a very clear glaſs; keep the liquor from the air, and let the calx ſtand ſtill, and the bits of calx will preſently begin to grow; firſt they will ſwell, then put forth one or two ſtems, then divers branches and twigs, ſo exactly, that you cannot but wonder to ſee. The author affirms, that this growing is not imaginary, but real.

To make the ſteel TREE *of the philoſophers.* Diſſolve ſteel in rectified ſpirit, or oil of ſalt; ſo ſhall you have a green and ſweet ſolution, ſmelling like brimſtone; filtre it, and abſtract all the moiſture with a gentle heat, and there will diſtil over a liquor as ſweet as rain water, for ſteel, by reaſon of its drineſs, detains the corroſiveneſs of the ſpirit of ſalt, which remains at the bottom, like a blood red maſs, and it is as hot on the tongue as fire; diſſolve this blood red maſs, in oil of flints, or ſand, and you will ſee it grow up in two or three hours like a Tree with ſtem and branches.

To make the oil of flints. Take of the moſt pure ſalt of tartar in fine powder, twenty ounces; ſmall ſand, flints, pebbles, or cryſtals in fine powder, five ounces; mix them; put as much of this as will fill an egg-ſhell into a crucible; ſet it in a furnace, and make it red-hot, and preſently there will come over a thick and white ſpirit. Take out the crucible while it is hot, and that which is in it, like tranſparent glaſs, keep from the air; afterwards reduce it to powder, and lay it in a moiſt place, and it will diſſolve into a thick fat oil, which is the oil of flints, ſand, pebbles, or cryſtal.

TRIPOLI, } called alſo alana; a kind of chalk, or white
TRIPOLY, } ſoft ſtone, bordering a little on red, uſed by lapidaries, goldſmiths, copper-ſmiths, glaſs-grinders, &c. in poliſhing their works.

Some imagine Tripoli to be a common ſtone, burnt and calcined by the ſulphureous exhalations, which happen to be under the mines where it is found.

Of theſe mines there are a number in divers parts of Europe, particularly in Italy, where the Tripoli is very good. Others take it to be a native earth.

TRITON, a poetical ſea demi-god, held by the ancients to be an officer or trumpeter to Neptune, attending on him, and carrying his orders and commands from ſea to ſea.

The poets and painters repreſent him as half man, half fiſh, terminating in a dolphin's tail, and holding in one hand a ſea-ſhell, which ſerves him for a trumpet.

But, though mythologiſts ſpeak only of one Triton, yet the poets

poets have imagined ſeveral; giving ſome of them for trumpeters to all the ſea-gods, particularly to Neptune and Venus.

TRUCE, is repreſented, in painting, &c. by a woman in the middle of an iſland in the calm ſea, ſitting upon a bundle of arms; ſhe has a breaſt-plate like Bellona, a helmet on her right knee; graſps a rod, about which is twiſted a wolf-fiſh and a mullet united, holding in her left a dog and a cat in a cord, ſitting peaceably.—Her place denotes Truce is like the calm ſea, which does not laſt; always ſitting upon arms tied together, that in time of Truce hoſtilities are laid aſide; the breaſt-plate, that in time of Truce the care of war is in the people's breaſts; the fiſh ſhew, that, though they be mortal enemies, yet at a certain time they uſually meet together; the dog and cat ſhew the ſame.

TRUTH, ſaith Hippocrates, was framed in the ſimilitude and likeneſs of a beautiful woman, attired with gravity and modeſty.

Philoſtratus tells us that ſhe remained in the cave of Amphiaraus, of a beautiful countenance, cloathed all in white garments.

Lucianus ſays, that her ſtatue was made in the form of a young woman, habited in rags, and baſe attire, with a ſuperſcription over her head, how ſhe was wronged and abuſed by fortune.

The TUBEROSE *to paint.* Lay on white, and ſhade with black, and a little biſtre in ſome places, and mix a little carmine for the outſide of the leaves, to give them a reddiſh teint, particularly towards the end.

Do the ſeed with maſticote, and ſhade it with bladder green.

Colour the green of the leaves and ſtalks with verditer, and ſhade them with iris green.

TUITION, is repreſented, in painting, &c. by a woman in a red garment, a book of accompts under a balance in her right hand, with the motto Computa; in the left, the ſkirt of her robe, wherewith ſhe ſeems to cover the nakedneſs of a child ſleeping at her feet, over which is a lizard; a cock on the other ſide.—The balance and book ſhew, that a tutor is obliged to give a juſt account of his pupil's eſtate; the red denotes love and charity; the cock, vigilance, requiſite to the faithful diſcharging of his duty; the covering, care; and the lizard watches over men, when they lie careleſly aſleep.

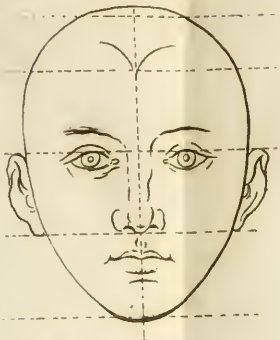
Theodore Van TULDEN, an engraver of all kind of ſubjects, uſed this mark.

TULIPS, *to paint in miniature.* There being a great number of ſorts of Tulips, I ſhall omit many of them, eſpecially the plain ones, which may be done by the directions elſewhere given, for the making of particular colours, and only touch upon thoſe called ſtriped or ſtreaked Tulips.

Theſe ſtripes, or ſtreaks, are laid in with carmine, very thin in

Tranquility.

Tranquility.



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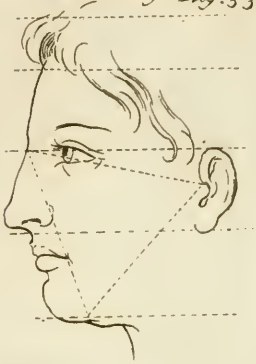
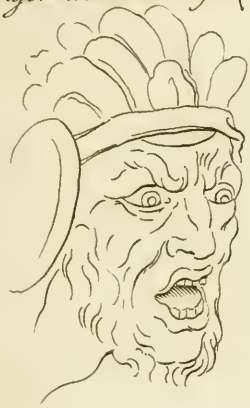
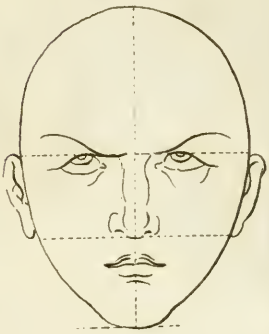


Anger mixt w.th Rage.



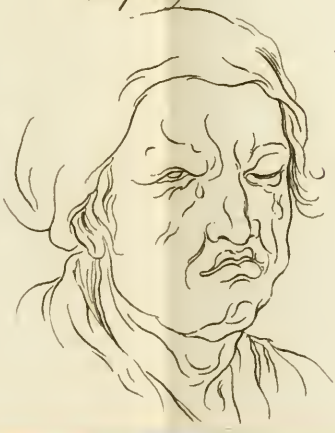
Profound veneration.

Veneration.



Weeping.

Weeping



Weeping

Toms sculp.

in ſome places, and very deep in others; and are to be finiſhed with fine ſtrokes of the ſame colour, which muſt all obſerve the turn of the ſtripes.

As for others, you may begin with vermilion, and proceed by mixing it with carmine, and finiſh with carmine only.

For others, lay Indian ink upon vermilion inſtead of carmine.

Some again you may colour with lake and carmine mixed together; and lake only, or with white, to begin with.

Thoſe that are of a violet purple colour are to be done with ultramarine and carmine, or lake, ſometimes bluer, and ſometimes redder.

The manner of doing both is juſt the ſame, there is no difference, but in the colours.

A blue made of ultramarine and white, and ſometimes a tranſparent purple, is to be put in certain places; as, for example, between the ſtripes of vermilion, carmine, or lake, which muſt be finiſhed with fine hair ſtrokes like the reſt, and ſcumbled into the ſtripes.

Thoſe Tulips, that have fallow teints, are made of lake, biſtre, and oker, according as they happen to be; but theſe are only for fine or uncommon Tulips.

Shade ſuch, whoſe ſtripes are carmine, with indigo.

As for thoſe, whoſe ſtripes are coloured with lake, uſe black and white, ſometimes mixing biſtre with it, at other times green.

Shade ſome with gamboge and umber, and always with fine hair ſtrokes, which follow the turn of the leaf.

Thoſe Tulips, which are called edged, are all of one colour, except the border, which is white and purple.

Lay the purple Tulip of this bordered ſort with ultramarine, carmine, and white, and ſhade and finiſh with the ſame.

You muſt not touch the border, that is, you muſt only lay on a thin white, and ſhade it with a very thin indigo.

Colour yellow Tulips with gamboge, and ſhade them with the ſame oker, umber, or biſtre. Do the edging with vermilion, and finiſh with a very little carmine.

Red Tulips are laid with vermilion, and finiſh with the ſame colour, with a little carmine or lake added to it. Do the border with gamboge, and finiſh it; add gall-ſtone, umber, or biſtre to the ſame.

White Tulips muſt be ſhaded with black, blue, and white; Indian ink is very proper in this caſe, for it ſhades ſoft, as it is of itſelf equal to the effects of blue and white, mixed with other black. Edge theſe with carmine.

There is in all theſe ſorts of Tulips a nerve in the middle of the leaves, which muſt be made much brighter than the reſt, and

the

the edges muſt be ſcumbled into the grounds by fine ſtrokes; for they muſt not ſeem cut or ſeparated from the reſt.

There are ſtill others of different colours; and ſuch as are, as it were, black on the inſide, are to be coloured and finiſhed with indigo, as well as the ſeed.

If the Tulips have a yellow ground, uſe gamboge; and, to finiſh them, add a little umber or biſtre.

The leaves and ſtalks of Tulips are commonly painted with a ſea-green, and ſhaded and finiſhed with an iris green, with broad ſtrokes along the leaves.

Some again may be coloured with verditer, mixed with maſticote; theſe you may ſhade with bladder green, that they may have a more yellowiſh caſt.

TURCOISE, } is a precious ſtone of a blue colour, ordi-
TURQUOIS, } narily opaque, but ſometimes a little tranſparent.

There are of theſe ſeveral kinds, oriental and occidental; of the new rock and of the old.

The oriental Turcoiſe partakes more of the blue tincture than the green; and the occidental more of the green than the blue.

Thoſe of the old rock are of a deep blue, and thoſe of the new rock more whitiſh, and do not keep their colour.

The oriental ones come from Perſia, the Indies, and ſome parts of Turky; and ſome even ſuppoſe it is thence they take the modern name of Turcoiſes.

The occidental are found in various parts of Europe, particularly Germany, Bohemia, Sileſia, Spain, and France.

Turcoiſes all grow of a round or oval figure; they cut eaſily, and ſeals are frequently engraven on them.

The Turcoiſe is eaſily counterfeited, and that ſo perfectly, that it is impoſſible to diſcover the deceit without taking it out of the collet.

In the memoirs of the Academy of Sciences, we have a very curious account of the formation of the Turcois, the manner of giving it the blue colour, &c. by M. Reaumur.

He obſerves, that the Turcoiſe is one of the ſofteſt of precious ſtones, its hardneſs ſcarce exceeding that of a cryſtal, or a tranſparent pebble; though ſome are much harder than others, and ſtill the harder, cæteris paribus, the more valuable, by reaſon of the vivacity of the poliſh, which is always proportionable to the hardneſs.

Roſnel, a jeweller, eſtimating the ſeveral precious ſtones, ſet a hard Turcoiſe, whoſe blue is neither bright nor deep, on the foot of the moſt perfect emeralds, that is, on a level with a diamond. Thoſe that have any defect he only values at a French crown a carat.

Tavernier

Tavernier affirms, that there are but two mines of Turcoiſes known in all the earth, and thoſe both in Perſia; the one called the old rock, near a town called Neaburg, three days journey to the north-eaſt of Meched; the other, called the new rock, is five days journey.

He ſays the new rock is but little valued, and the king of Perſia has for many years prohibited the digging in the old rock for any but himſelf. And M. Reaumur ſuppoſes the old rock to be now exhauſted.

In reality, the common diviſion of Turcoiſes into thoſe of the old rock or oriental, and new rock or occidental, is very arbitrary and precarious.

All the beſt and moſt perfect, wherever they grow, either in India or Europe, are reckoned among the former, and the reſt among the latter.

There are ſeveral conſiderable mines of Turcoiſes near Simore in lower Languedoc; but that fine blue colour admired in the Turcoiſes is not natural to theſe rocks; the prevailing colour being ſometimes white, and ſometimes much like that of Tripoli and Venice.

The other precious ſtones are dug out of the mine with all their colour, to the force whereof nothing can be added, though it may frequently be diminiſhed; as we ſee fire bring down the too deep colour of the ſapphire, and take that of a pale ſapphire quite away.

Theſe Turcoiſes, on the contrary, are naturally whitiſh, or yellowiſh, of a colour as common as that of a free-ſtone; and, by oppoſing them for ſome time to the action of the fire, they aſſume a blue colour.

Though it ſeems a paradox, yet M. Reaumur has made it exceeding probable, that Turcoiſes are originally the bones of animals.

In the mines of France, pieces have ſeveral times been found in the figure of teeth, bones of the arms, legs, &c.

And Turcoiſes, which are yet imperfect or ill formed, are apparently compoſed of laminæ, or leaves, like thoſe of bones, between which ſome petrifying juice inſinuating itſelf, binds them cloſe together; and ſtill the ſofter and more imperfect the ſtones are, the more diſtinguiſhable are the different directions of the fibres and laminæ with their interſections; and the greater reſemblance they bear to fractured bones, and the leſs to any kind of ſtones known.

To give them the blue colour, they dry them a while in the air, and afterwards heat them gradually in a furnace, made after a particular manner.

If they are heated too haſtily, the humidity between the la-

minæ, wanting time to evaporate all, will ſeparate into ſcales or flaws.

Some of the ſtones require a greater degree of heat to bring them to their colour than others; and, even in large pieces, ſeveral parts ordinarily require ſeveral degrees of heat.

For this reaſon, a great deal of care is to be taken in the heating them; for the fire, which gives them their blue by degrees, if they be expoſed beyond a certain degree, takes it away again.

M. Reaumur does very well account for their taking a blue colour by heat; it ſeems, that, when they are freſh cut out of the rock, their ſubſtance is found ſprinkled, and ſtreaked all over with ſpots, veins, little circles, &c. of a black-blue colour.

Theſe he ſuppoſes to be remains of a deep bluiſh matter, which the fire ſpreads by rarefying them, and diffuſes throughout the whole ſubſtance of the ſtone.

He alſo concludes, that this matter has been either originally the juice contained in the bones, ſince mixed and coagulated with the petrifying juice, or ſome other mineral matter inſinuated into the pores of the ſtone.

The great defect of all Turcoiſes is, that in time they loſe their blue colour, and become green, and then ceaſe to be of any value.

The ancients attributed a kind of ſympathetic virtue to the Turcoiſes.

It is commonly ſuppoſed, that it changes colour, or breaks at the death, ſickneſs, or even misfortune of the perſon who wears it; that it is diſagreeable to married people, and even breaks on their fingers; that it marks all the changes and accidents that happen in the body of the wearers, by anſwerable changes in its colour; and for this reaſon the ladies have left off wearing it.

De Boot endeavours to account for all theſe effects from natural, and even probable cauſes.

The way to make TURCOISE. Take ten ounces of natural cryſtal prepared, and ſaturnus glorificatus; half an ounce of purified verdigreaſe, and one ounce of our prepared zaffer, the whole in fine powder; which mix well together in a crucible covered, with another well luted and dried, which afterwards put into a glaſs-houſe furnace, where leave it for three hours; then twelve hours in the annealing furnace, that it may cool gently; then take out your crucible, and break it, and take out the matter, and cut and poliſh it, and you will have Turcoiſe-coloured ſtones like thoſe of the old rock.

The way of making TURCOISE *blue, a particular colour in this art.* For this colour take a pot full of cryſtal frit tinged with an aqua-marine colour, or blue, whereof we have given ſeveral

prepa-

preparations, which colour muſt be fair and full, for all depends on that; it being well melted, put into it, little by little, ſea ſalt decrepitated white, and reduced to powder, mixing it well and ſoftly, as we have noted in ſpeaking of other metalline colours; and the blue, from clear and tranſparent, will become thick; for the ſalt, penetrating the glaſs, takes away its tranſparency, and cauſes a paleneſs; hence alone comes the Turcoiſe colour uſed in glaſs. When the colour is right to the workman's fancy, it muſt be preſently wrought, for the ſalt will evaporate, and make the glaſs tranſparent and diſagreeable; if in working this metal the colour fades or goes off, you muſt add a little more of the ſame decrepitated ſalt, as before, and the colour will return.

We will here advertiſe the workman, that he muſt take care, that this ſalt be well decrepitated, otherwiſe it will always crackle and be apt to fly in his eyes, and endanger his ſight; you muſt, as I have ſaid, put in the ſalt in intervals, till the colour pleaſes you.

It will ſuffice for this uſe, that the frit tinged aqua-marine, or blue, be made of one half cryſtal metal, and the other of rochetta, and the colour will be very fair and good.

TURMERIC, is a root uſed by dyers to give a yellow colour. This root is yellow both within and without ſide, very hard, as if petrified, and not unlike either in figure or ſize to ginger. The leaves it produces are like thoſe of black hellebore; its flowers riſe in manner of ſpica, or ear, and its fruit is rough like new cheſnuts.

It comes chiefly from the Eaſt-Indies, though it grows alſo in the iſland of Madagaſcar.

It ſhould be choſen large, reſinous, hard to break, and heavy.

Some perſons have miſtakenly imagined there was a native red Turmeric; their error was owing to this, that the yellow root, as it grows old, turns brown, and, when pulveriſed, reddiſh.

It is much uſed by glovers, &c. to dye their gloves; as alſo by founders, &c. to give a gold colour to their medals.

The Indians uſe it to colour their rice and other foods yellow; for which reaſon, it is by ſome called Engliſh ſaffron.

Our dyers do not find it gives ſo ſteady a yellow as the luteola or greening weed; but it is admirable for brightening and heightening the red colours dyed with cochineal, or vermilion, as ſcarlets, &c.

TURNING, is a branch of ſculpture, being the art of faſhioning hard bodies, as wood, ivory, braſs, &c. into round or oval forms in a lathe.

Turning is performed by putting the ſubſtance to be turned upon two points as an axis; and moving it round, or about on

that axis; while an edged tool, ſet ready to the outſide of the ſubſtance in a circumvolution of it, cuts off all the parts that lie further off from the axis; and makes the outſide of that ſubſtance concentric to the axis.

The principal inſtruments uſed in Turning, beſides the lathe, are chiſſels and mandrils of various forms.

The invention of Turning ſeems to be very ancient. Some indeed, to do honour to the age, will have it, that it has been brought to perfection by the moderns; but if what Pliny, and ſome other ancient authors relate, be true, that the ancients turned thoſe precious vaſes, enriched with figures and ornaments in relievo, which are ſtill to be ſeen in the cabinets of the curious; it muſt be owned, that all which has been added in theſe ages, makes but a poor amends for what we have loſt of the manner of Turning of the ancients.

TURPENTINE, is a tranſparent gum, which flows either naturally or by inciſion, from ſeveral fatty, reſinous trees, ſuch as terebinthus, larch, pine, fir, &c.

There are ſeveral ſorts of Turpentine; as that of Chio, that of Venice, that of Bourdeaux, that of Cyprus, Straſburg, &c.

The Turpentine of Chio, which is the only genuine kind, and that which gives the name to all the reſt, is a whitiſh reſin, bordering a little on the green, very clear, and ſomething odoriferous; it is drawn by inciſion from a tree called terebinthus, which grows plentifully in that iſland, as alſo in Cyprus, and ſome parts of France and Spain.

It ſhould be choſen of a ſolid conſiſtence, almoſt without either taſte or ſmell, and not at all tenacious, which diſtinguiſhes it from the falſe Turpentine of Venice, which is commonly ſubſtituted in its place, having both a ſtrong ſmell and a bitter taſte, and is very ſticking or clammy.

This Turpentine of Chio is undoubtedly the beſt for many uſes; but the ſcarcity of it is the cauſe, that it is but little in uſe.

The Venice Turpentine is falſly ſo called; for, though there was a Turpentine anciently brought from Venice, yet that, which is now ſo called, comes from Dauphine in France.

It is liquid, of the conſiſtence of a thick ſyrup, and whitiſh; and flows either ſpontaneouſly, or by inciſion, from larches, firs, and pines, chiefly in the wood de Pilatze.

That which flows naturally, is a kind of balm, not inferior in virtue to that of Peru, and is frequently ſubſtituted for it.

That which is drawn by inciſion, after the tree has left off yielding ſpontaneouſly, is of very conſiderable uſe in ſeveral arts, and is that of which varniſh is made.

This is to be choſen white and tranſparent, and great caution

is

is to be used that it has not been counterfeited with oil of Turpentine.

The Turpentine of Bourdeaux is white and thick as honey. It does not ooze from the tree in the form in which it is brought to us; but is properly a compoſition, wherein, among other ingredients, is a white hard ſort of reſin, called gallipot.

The Turpentine of Straſburg, Dantzic, &c. is what is moſt commonly uſed among us, and preferred to that of Venice; from which it is diſtinguiſhed by its green hue.

Oil of TURPENTINE. There are two ſorts of this oil drawn from Turpentine by diſtillation; the firſt is white, and the ſecond red, both eſteemed as balſams; but theſe are both little uſed by us, and ſcarce to be had.

What is commonly ſold under the name of oil of Turpentine, is only a diſtillation of the reſin called gallipot, freſh from the tree. This is uſed by painters, &c.

To be good, it ſhould be clear and white as water, of a ſtrong penetrating ſmell, and very inflammable.

TUTTY, is a kind of metallic ſoot, thrown off from braſs in the furnace, and formed into concave flakes of different ſizes and thickneſſes; very hard, greyiſh, and full of little protuberant grains, about the bigneſs of pins heads.

It is found adhering to rolls of earth, hung up for that purpoſe over the furnaces of founders in braſs, to receive the fumes of the melted metal.

V.

PERINO *del* VAGA, born in 1500, ſtudied Michael Angelo and Raphael, lived at Genoa, Piſa, and Rome; excelled in hiſtory and architecture; died in 1547, aged forty-ſeven years.

VAL. ſtands for Valeſio, John Lewis Valeſio of Bologna.

VALO *Lewis* VALESIO of Bologna, painter and engraver. His mark was alſo VAL.

VALOUR, is repreſented, in painting, &c. by a man in his prime, his garment of cloth of gold, a ſcepter in his right hand, a garland of laurel; and with his left ſtroking a lion on the head. His virility, or man's eſtate, denotes the ſupport of valour and bravery; the ſcepter, that pre-eminence is due to it; the laurel, his ever being in the ſame humour; the lion, the property of courageous men to get love of the moſt barbarous by their courteſy.

M. J. VAN *Velde* uſed this mark; and near the mark we read Olyn on landſcapes engraven by him.

William VANDER *Velde*, commonly called the old, was an

extraordinary ſhip-painter of Amſterdam; coming over to England, he was much employed by king Charles II, for whom he painted ſeveral of the ſea-fights between the Dutch and Engliſh. He alſo underſtood navigation extraordinary well, and is ſaid to have conducted the Engliſh fleet to the burning of Schelling. He was the father of a maſter, whom no age excelled in ſhip-painting; and this we owe to the father's inſtructions, who was an admirable draughtſman of all maritime objects. He lived at Greenwich to be more converſant in theſe things, which were his continual ſtudy; and in which king Charles II. and king James II. gave him all poſſible encouragement, making him their painter with a conſiderable ſalary, which afterwards was continued to his ſon. The father in his latter days commonly drew in black and white, on a ground prepared on canvaſs; to which, like paper, he gave an eaſy freedom to his ſails and tackle; as alſo to every part of a ſhip due proportion with infinite neatneſs; for his better information in this way of painting, he had a model of the maſts and tackle of a ſhip always before him to that nicety and exactneſs, that nothing was wanting in it, nor nothing unproportionable. This model was in the hands of his ſon Old Vander Velde, who died in London about ſixty years ago.

VAN *Rhin in.* ſtands for Rembrant de Rein.

Andreas VANDE *Venne* pinxit V. V. Delft, ſc. Willielmus Delft ſculpſit.

Dirich VANDER *Staren* lived in the year 1500. He marked his plates with the month and year in which they were engraven; as in that of the flood, and another where the Virgin is aloft, and St. Bernard at her feet, marked 3d of October 1524, and the other marked 1544. He likewiſe uſed the letter D, in which was V.

VANITY, is repreſented, in painting, &c. by a young girl, ſplendidly adorned, of a jovial countenance, painted, carries upon her head a diſh with a heart in it.—Vanity is that which propoſes no end to its actions, and therefore to be richly cloathed and painted as done to pleaſe others, for no other end but to enjoy a ſhort pleaſure, is a ſign of Vanity; it likewiſe diſcovers its heart and thoughts, having no end in its eye, and therefore the heart is viſible over her head.

Cavalier Franceſco VANNI, born in the year 1563, ſcholar of his godfather Arcangelo Sallimbeni Fed. Zucchero, and afterwards imitated Barocci, lived at Siena, excelled in hiſtory and religious ſubjects; died in the year 1610, aged forty-ſeven years.

Herman VARELST, was elder brother of the famous Simon Varelſt; he painted hiſtory, fruit, and flowers, after a manner very pleaſant and well coloured. He educated ſeveral ſons and one

one daughter in the same way of drawing. He studied some time at Rome, and resided in the emperor's court at Vienna, which city he left upon the Turks coming before it in 1683. He died at London sixty years ago, and lies buried in St. Andrew's Holborn.

VARNISH, } is a thick, viscid, shining liquor, used by paint-
VERNISH, } ers, gilders, and various other artificers, to give a gloss and lustre to their works; as also to defend them from the weather, dust, &c.

There are several kinds of Varnishes in use; as the siccative or drying Varnish, made of oil of aspin, turpentine, and sandarach melted together.

White Varnish, called also Venetian Varnish, made of oil of turpentine, fine turpentine, and mastic.

Spirit of wine Varnish, made of sandarach, white amber, gum elemi, and mastic; serving to gild leather, picture frames, &c. withal.

Gilt Varnish, made of linseed oil, sandarach, aloes, gamboge, and litharge of gold.

China Varnish, made of gum lacca, colophony, mastic, and spirit of wine.

Common Varnish, which is only common turpentine, dissolved in oil of turpentine.

White VARNISH, } from a manuscript of Mr. Boyle.
Amber VARNISH, } Take white rosin four drachms, melt it over the fire in a clean glazed pipkin, then put it into two ounces of the whitest amber you can get, finely powdered. This is to be put in by a little and a little, gradually, keeping it stirring all the while with a small stick, over a gentle fire, till it dissolves, pouring in now and then a little oil of turpentine, as you find it growing stiff; and continue so to do till all your amber is melted.

But great care must be taken not to set the house on fire, for the very vapours of the oil of turpentine will take fire by heat only; but, if it shall happen so to do, immediately put a flat board or wet blanket over the fiery pot, and, by keeping the air from it, you will put it out, or suffocate it.

Therefore it will be best to melt the rosin, in a glass of a cylindric figure, in a bed of hot sand, after the glass has been well annealed or warmed by degrees in the sand, under which you must keep a gentle fire.

When the Varnish has been thus made, pour it into a coarse linen bag, and press it between two hot boards of oak or flat plates of iron; after which it may be used with any colours in painting, and also for varnishing them over when painted.

But, for covering gold, you must use the following Varnish:

This is to be obſerved, that, when you have varniſhed with white Varniſh, you may put the things varniſhed into a declining oven, which will harden the Varniſh.

A hard VARNISH, *which will bear the muffle, from a manuſcript of Mr. Boyle's, for laying over any metal, that appears like gold, to prevent it from turning black, which all but gold will be apt to do, when expoſed to the air.* Take of colophony, an ounce; ſet it over the fire in a well glazed earthen veſſel, till it is melted; then by little and little ſtrew in two ounces of powder of amber, keeping ſtirring it all the while with a ſtick; and, when you perceive it begin to harden or reſiſt the ſtick, then put in a little turpentine oil, which will thin and ſoften it immediately; then put in two ounces of gum copal, finely powdered, ſprinkling it in as you did the amber, ever and anon pouring in a little oil of turpentine; and, when it is done, ſtrain it as before directed.

This is proper to Varniſh over gold; the things done with it muſt be ſet into a declining oven, three or four days ſucceſſively, and then it will reſiſt even the fire.

A VARNISH *for braſs, to make it look like gold.* This is uſed upon leaf gold, or upon that which is called Dutch or German leaf gold, or upon braſs or bath-metal, which are deſigned to imitate gold.

Take two quarts of ſpirit of wine, and put it into a retort gloſs; then add to it an ounce of gamboge, two ounces of lake, and two ounces of gum maſtic; ſet this in a ſand heat for ſix days, or elſe near a fire; or you may put the body of the retort frequently into warm water, and ſhake it two or three times a day, then ſet it over a pan of warm ſmall-coal duſt. Before you lay this Varniſh over the metal, to be ſure you ſee that it has been well cleaned, Varniſh it over thinly with this Varniſh, and it will appear of the colour of gold. Set it in a declining oven to harden, and it will not rub off.

N. B. This is a good Varniſh to mix with any colours that incline to red, and the white Varniſh for mixing with thoſe that are pale.

To make the ſtrong Japan VARNISH. See JAPAN.

Varniſhing prints, &c. with white VARNISH, *ſo as to bear water and poliſhing.* The print ſhould be firſt paſted either on board or ſhock cloth, ſtrained on a frame; in order to do this well, prepare ſome ſtiff ſtarch; and with a ſponge dipped in water, or thin ſtarch, without any blue in it, wet the back of your print; and, if you deſign to lay it on a board, dip a large bruſh in thick ſtarch, and bruſh it over the board as even as poſſible, and let it dry; or you may lay a ground of whiting and ſize on the board firſt, which will do very well; then repeat it a ſecond time, and ſo continue till the veins or grain of the wood are quite filled.

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In the laſt operation, when the ſtarch is juſt laid on, lay the wet print upon it, as ſmooth as poſſible, that there may be no wrinkles nor bubbles in it; and preſs it on cloſe every-where, till it lies ſmooth, and ſo ſet it by to dry; which it will be, and fit to Varniſh in twenty-four hours, with the following Varniſh:

Take ichthyocolla, or iſing-glaſs, two ounces, and, after you have pulled it into ſmall pieces, boil it in a pint of brandy, or ſtrong ſpirits, in a well glazed earthen veſſel, till it comes to a ſtrong glue, which you may know by taking out a little, and expoſing it to the air; it is then fit for your purpoſe, but do not fail to make it as ſtrong as you can.

And, while it is hot, with a large bruſh, bruſh over the print as quick as you can, and as ſmooth and even as may be; ſet it by for a day or two, and then do it over again with the ſame Varniſh or glue, and let it dry again very well; then bruſh it over with white Varniſh at ſuch a diſtance from the fire, that it may not bliſter. Repeat this two or three times; then let it ſtand for a day or two, and then Varniſh it over again with the white Varniſh the third time, with two or three paſſages of the bruſh; then let it ſtand for three or four days, and it will be hard enough to be poliſhed; which is to be done with a ſoft linen cloth and ſome tripoli, rubbing it very gently, till it is as ſmooth as may be; afterwards clear it with flour and oil, and then it will appear as clear as glaſs; and, if at any time it is ſullied with fly-ſhits, you may clean it, by waſhing it with a ſponge and water.

The white VARNISH. Take gum ſandarach, of the cleareſt and whiteſt ſort, eight ounces; gum maſtic, of the cleareſt ſort, half an ounce; of ſarcocolla, the whiteſt, three quarters of an ounce; Venice turpentine, an ounce and a half; benzoin, the cleareſt, one quarter of an ounce; white roſin, one quarter of an ounce; gum animæ, three quarters of an ounce; let all theſe be diſſolved, and mixed in the manner following:

Put the ſarcocolla and roſin into a little more ſpirits than will cover them to diſſolve; then add the benzoin, gum animæ, and Venice turpentine, into either a glaſs or glazed earthen veſſel, and pour on as much ſpirits as will cover them an inch; then put the gum maſtic into a glaſs or glazed veſſel, and pour ſtrong ſpirits upon it, covering it alſo about an inch thick, to diſſolve it rightly; then put your gum elemi in a diſtinct veſſel as before, and cover it with ſpirits to diſſolve.

For this purpoſe, you need only break the roſin a little, and powder the gum animæ, ſarcocolla, and benzoin.

Let all ſtand three or four days to diſſolve, ſhaking the glaſſes &c. two or three times a day, and afterwards put them all together into a glazed veſſel, ſtirring them well; and ſtrain the li-

quor and gums gently, beginning with the gums, through a linen cloth.

Then put it into a bottle, and let it ſtand a week before you uſe it, and pour off as much of the clear only, as you think ſufficient for preſent uſe.

To poſte prints upon cloth for VARNISHING. If the print be put upon a ſhock cloth, well ſtrained in a frame, bruſh the cloth over with ſtrong paſte, made with flour and water; and immediately bruſh over the back of the print with well prepared ſtarch, and then bruſh the cloth over with the ſame ſtarch, and lay on the print as ſmooth as poſſible, without leaving any wrinkles or bubbles in the paper. This you ſhould take notice of, that, when you have laid your paper upon the cloth, they will both together appear flagging and unſtrained; but, as ſoon as they are dry, all will be ſmooth, as either of them was at firſt.

Let them ſtand ſo in a dry warm place for a day or two, and then you may Varniſh your print as before directed, with glue made of ichthyocolla, and then with white Varniſh.

With this Varniſh you may mix up any colour, that has been ground dry, with a marble, and paint it upon any figure you have drawn, or upon any print you have paſted upon your work; but the varniſhed colours ſhould be chiefly put upon the ſhady.

VARNISH *made with ſeed lacca.* Take a quart of ſtrong ſpirit of wine, put into a glaſs veſſel; and put to it ſix ounces of ſeed lacca, and let them ſtand together for two days, ſhaking them often; then paſs it through a jelly-bag, or a flannel-bag, made like what is called Hippocrates's ſleeve, letting the liquor drop into a well-glazed veſſel, and giving the gums a ſqueeſe every now and then. When the Varniſh is almoſt out of the bag, add more, and preſs it gently till all is ſtrained, and the dregs remain dry.

Be ſure you do not throw the dregs into the fire, for they will endanger ſetting the houſe on fire.

Put the Varniſh up in a bottle, and keep it cloſe ſtopped, ſetting it by, till all the thick parts are ſettled to the bottom, which they will do in three or four days; then pour off the clear into a freſh bottle, and it will be fit for uſe.

As for Varniſh made of ſhell lacca, it is not of any great ſervice, though ſo often recommended, for it will not bear the poliſh.

When you lay on your Varniſhes, take the following method:

1. If you Varniſh wood, let your wood be very ſmooth, cloſe-grained, free from greaſe, and rubbed with ruſhes.

2. Lay on your colours as ſmooth as poſſible, and, if the Varniſh has any bliſters in it, take them off by a poliſh with ruſhes.

3. While

3. While you are varniſhing, keep your work warm, but not too hot.

4. In laying on your Varniſh, begin in the middle, and ſtroke the bruſh to the outſide, then to another extreme part, and ſo on until all be covered; for, if you begin at the edges, the bruſh will leave blots there, and make the work unequal.

5. In fine works uſe the fineſt tripoli in poliſhing: Do not poliſh it at one time only, but, after the firſt time, let it dry for two or three days, and poliſh it again for the laſt time.

6. In the firſt poliſhing you muſt uſe a good deal of tripoli, but in the next a very little will ſerve; when you have done, waſh off your tripoli with a ſponge and water; dry the varniſh with a dry linen rag, and clear the work; if a white ground, with oil and whiting; or, if black, with oil and lamp black.

VARNISH, with potters, &c. is a ſort of ſhining plaiſter, with which potters ware, Delft ware, China ware, &c. are covered, which gives them a ſmoothneſs and luſtre: Melted lead is the Varniſh uſed for the firſt, and ſmalt for the ſecond.

VARNISH, with medaliſts, is alſo a name given to the colours which antique medals have got in the earth.

The beauty, which nature alone is able to give to medals, and art has never yet attained to counterfeit, enhances the value of them; that is the colour, which certain ſoils, in which they have a long time lain, tinges the metals withal; ſome of which are blue, almoſt as beautiful as the turquois; others with an inimitable vermilion colour; others with a certain ſhining poliſhed brown, vaſtly finer than braſil figures.

The moſt uſual Varniſh is a beautiful green, which hangs to the fineſt ſtrokes without effacing them, more accurately than the fineſt enamel does on metals.

No metal but braſs is ſuſceptible of this; for the green ruſt, that gathers on ſilver, always ſpoils it; and it muſt be got off with vinegar or lemon juice.

Falſifiers of medals have a falſe or modern Varniſh, which they uſe on their counterfeits, to give them the appearance, or air, of being antique. But this may be diſcovered by its ſoftneſs, it being ſofter than the natural Varniſh, which is as hard as the metal itſelf.

Some depoſit their ſpurious metals in the earth for a conſiderable time; by which means they contract a ſort of Varniſh, which may impoſe upon the leſs knowing; others uſe ſal armoniac, and others burnt paper.

VARNISH *for glaſs*. Take oil of turpentine ſix ounces, Venice turpentine three ounces, gum of ivy, or rather maſtic, one ounce; put them into a glaſs bottle, ſtop it well, and wax it, that

that no vapours may come forth; then diſſolve it in balneo mariæ, which will be done in about two hours time.

An uſeful VARNISH. Take drying linſeed oil, ſet it on the fire, and diſſolve it in ſome good roſin, or which is better, but dearer, gum lacca; let the quantity be ſuch as may make the oil thick as a balſam. When the roſin or gum is diſſolved, you may either work it of itſelf, or add to it ſome colour, as verdigreaſe, for a green; or amber, for an hair colour; or indigo and white, for a light blue.

This will ſecure timber work done over with it, equal to painting with colours in oil, and is much more eaſy to obtain; for linſeed oil and roſin are more eaſily melted together by boiling, than colours can any ways be ground; and, being of the conſiſtence of a balſam, works very readily with a bruſh, and of itſelf, without the addition of colours, bears a body ſufficient to ſecure all manner of timber work, equal to moſt oil colours.

In the working of it, there is no great ſkill required, if you can but uſe a painter's bruſh; only let the matter you lay it on be thoroughly drenched, that the outſide may be glazed with it: And, if you deſire a colour on the outſide, you need only grind a colour with the laſt Varniſh you lay on.

General rules to be obſerved in VARNISHING. Let your wood be cloſe-grained, exempt from all knots and greaſineſs, very ſmooth, and well ruſhed. You muſt work in a room with a good fire, becauſe your work muſt be always warm, but never put it ſo near the fire as to ſcorch it, or make it quite hot; for that will bliſter and crack it, which is a damage can never be repaired. When you lay the grounds, warm your work before every waſh, and keep it in a gentle heat always, while it is drying. When it is ready for the pictures, rub the wrong ſide of the prints with ſtarch, and fix them on as flat as poſſible, that there may be no bliſters, nor any part which is not fixed down cloſe with the ſtarch; otherwiſe the edges will be apt to riſe, and will always lie rough. When they are dried on, paſs them over with a ſmall pencil dipped in common ſize, which you muſt have ready melted, to ſecure the colours from running; when that is dry, you may begin to varniſh.

When you begin the Varniſhing ſtroke, fix your bruſh in the middle of the work, and, with a quick ſteady hand, draw it to the other end. Then fix it again on the place you begun at, and draw it to the other end; thus you muſt do until it is all varniſhed. The reaſon for this caution is, that if, you drew your pencil from end to end, the bruſh being overcharged at firſt, the Varniſh would run over the edges of your work. Never paſs your bruſh twice over the ſame place while it it wet, for that will make it lie rough.

Stroke

Stroke your brush once or twice against the side of the pot, every time you dip it to take varnish, that it may not be too full: For, the thinner you lay on the varnish, each time, the smoother it will be, and not so liable to speck and bubble. Continue Varnishing until the ground and pictures lie even; that is to say, that the ground be as high as the prints, and it all looks smooth and even. You must not omit Varnishing it once every day until it is finished; then let it lie three weeks, or a month, before you polish it.

To polish. There are three several ways to polish, which I shall give you all. The first is, a pumice-stone steeped and melted in water; smear your work with it, and rub it with felt, until all the strokes of the pencil disappear; then wash it off with cold water, and wipe it off with a soft cloth or muslin.

The second is, the dust which comes from sawing of stones, finely sifted, and used like the pumice-stone.

The third is with tripoli. Wrap a piece of very fine old linen about your fore-finger. Dip it in water, then into the tripoli, which must be scraped with a piece of glass, or otherwise reduced to a very fine powder, without the least grittiness, for that would ruin all. Let your hand be moderately hard, and very even in all your polishing strokes. Polish and brighten one place, as much as for that time you intend to do, before you pass to another.

Remember not to polish your work, as smooth as you intend at one time: But let it rest two or three days, and then give it the finishing stroke. Take a large quantity of tripoli for the first polishing, until it begins to become smooth; the second time a small quantity will suffice. Let your endeavours be chiefly to polish the ground; for that, being plain, will shew all faults the more.

To clear it up, wash off the tripoli with a sponge and water, and wipe it dry with a fine soft cloth: Mix oil and lamp black together, and with that anoint your work all over. Then take another soft cloth, and with a nimble quick stroke, and a hard hand, take the oil intirely off, and you will find it answer the pains you have been at.

This way of clearing serves for all but the whites and yellows, where instead of lamp black you must mix fine flouer with the oil. And, in the polishing, your hand must not be so heavy as in polishing other colours.

To make gold size. Take of gum animæ half an ounce, gum asphaltum half an ounce, litharge of gold a quarter of an ounce, red lead and brown umber, of each a quarter of an ounce; put all these into a new earthen pipkin, that holds one third more than you put in: Put in half a quarter of a pint of linseed oil,

and

and a quarter of a pint of drying oil. Set the pipkin over a gentle fire, that does not flame out in the leaſt; let it but juſt bubble up, or almoſt boil, for, ſhould it run over, it would fire the chimney. As ſoon as it begins to bubble or boil, keep ſtirring it with a ſtick until the gums are all melted thoroughly, and that it becomes thick and ropy like treacle; then it is boiled enough. Take it off the fire, and, when the extremity of the heat is over, then ſtrain it through a coarſe linen cloth into another earthen pot, there to cool and lie ready for uſe. When you uſe it, put ſome of it into a muſcle-ſhell, with as much turpentine as will diſſolve the ſize, and make it as thin as the muddy part of the ſeed-lac varniſh: Hold it over a candle, and, when melted, ſtrain it through a linen rag into another ſhell; add to it as much vermilion as will make it of a darkiſh red.

Draw the figure or pattern, which you deſign to gild, after the ground of your work is laid; then with a pencil, proportioned to the work, lay the ſize neatly on thoſe places you intend to gild, and no other. Let it ſtand until it is ſo dry, that, when you touch it with your finger, it may be glutinous and clammy, and ſtick a little; but not ſo moiſt, that the leaſt ſpot or ſpeck ſhould come off with your fingers, not unlike to thick glue when it is half dry. When it juſt anſwers this deſcription, take a piece of waſh leather, wrap it round your fore finger, and dip it into your gold duſt, which you muſt have ready in a paper, and rub all over where the gold ſize is laid. If any ſhould be ſprinkled about your work, ſweep it into the paper again with a clean pencil that has been uſed. When your gold is dry, ſecure it with the following varniſh:

The ſecuring VARNISH *to be uſed only in gold work.* Take of the beſt Venice turpentine, as much as you pleaſe; put it into a pipkin that will hold double the quantity you put in; ſet it over a clear gentle fire, and be cautious it does not boil over. When it boils, which muſt be very gently, keep it always ſtirring with a ſtick until it is boiled enough, which you may know by pouring ſome on the ground; for when it is cold it will crumble into powder between your fingers. When it is ſufficiently boiled, let it cool, and keep it for the following uſe.

Take a quarter of a pint of the cleareſt ſeed-lac Varniſh, and one ounce of the turpentine finely powdered; put them into a double glaſs phial, large enough to contain twice as much; ſtop it cloſe, and ſet it over a very gentle fire, that it heat leiſurely, to prevent the bottle's breaking. When it is very hot, the danger is paſt: Let it juſt bubble up for a little time; then take it off, and unſtop the bottle, ſhaking it well: Stop it again, and ſet it on the fire to bubble as before. Let it continue till the turpentine be diſſolved to the bigneſs of a large pea, that, being the droſs,

droſs, will not incorporate with the reſt; take it off, and let it ſtand two days to ſettle, pour it off clear, and keep it for uſe. As this is only to ſecure the gold, you muſt be very careful in laying it on, that it touch not the leaſt part of your ground, nor any thing but the gold. If there are colours mixed amongſt it, finiſh it up with the white Varniſh. If the deſign be all gold, finiſh it with the following Varniſh.

N. B. The gold muſt be paſſed over twice or thrice with the ſecuring Varniſh.

The finiſhing VARNISH *for gold work.* Take one pound of Venice turpentine, three pints of water; put them into an earthen pipkin, big enough to hold twice the quantity; place them over a gentle fire, and let it warm by degrees till it begins to bubble up: Then keeping it always ſtirring with a ſtick, that it may boil leiſurely for ſome time, pour ſome of this liquor on the ground; and, when it is cold, if it crumbles to powder in your fingers, it is boiled enough. Set it by till it is cool enough to take into your hands, and ſqueeſe the water intirely out of it; then make it into a ball, and after a day or two beat it into fine powder for your uſe; ſet it in a very dry place, but not near the fire, for that will melt it. Put one ounce of this powdered turpentine to half a pint of the beſt ſeed-lac Varniſh; put it in a bottle that will hold twice as much cloſe ſtopped; when it has ſtood ſome time on a gentle fire, take it off, unſtop, and ſhake it. Continue this till the turpentine be diſſolved to the bigneſs of a large pea; ſet it by two days to cool and ſettle, then pour off the cleareſt for your work. Six or eight times varniſhing will do, but you muſt uſe your own judgment according to the colour of the gold. Let it ſtand three weeks or a month before you poliſh.

Giorgio VASARI, born in the year 1514, ſcholar of Michael Angelo and Andrea del Sarto, lived at Piſa, Bologna, Florence, Venice, Naples, Rome, &c. excelled in hiſtory, portraits, and architecture; died in the year 1578, aged ſixty-four years.

V. C. ſignifies Vincenzio Caccianemici, a nobleman of Bologna, and painter,

V. C. V. a mark uſed by an ancient engraver in a St. Bartholomew and a St. George.

Titiano VECELLI *da Cadore*, born in the year 1477, ſcholar of Gio Bellini and Giorgione, lived at Venice, excelled in hiſtory-painting, portraits, and landſcapes; died in 1576, aged ninety-nine years.

VENEERING, } is a kind of marquetry or inlaying; by
VANEERING, } which ſeveral thin ſlices or leaves of fine woods

woods of different kinds are applied and faſtened on a ground of ſome common wood.

There are two kinds of inlaying; the one, which is the moſt common and more ordinary, goes no farther than the making of compartments of different woods; the other requires much more art, in repreſenting flowers, birds, and the like figures.

The firſt kind is properly called Veneering; the latter is more properly called MARQUETRY, which ſee.

The wood uſed in Veneering is firſt ſawed out into ſlices or leaves about a line in thickneſs, i. e. the twelfth part of an inch: In order to ſaw them, the blocks or planks are placed upright, in a kind of ſawing-preſs.

Theſe ſlices are afterwards cut into narrow ſlips, and faſhioned divers ways, according to the deſign propoſed; then the joints having been exactly and nicely adjuſted, and the pieces brought down to their proper thickneſs, with ſeveral planes for the purpoſe, they are glued down on a ground or block with good ſtrong Engliſh glue.

The pieces being thus jointed and glued, the work, if ſmall, is put in a preſs; if large, it is laid on a bench covered with a board, and preſſed down with poles or pieces of wood, one end of which reaches to the cieling of the room, and the other bears on the board.

When the glue is thoroughly dry, it is taken out of the preſs and finiſhed; firſt with little planes, then with divers ſcrapers, ſome of which reſemble raſps, which take off the dents, &c. left by the planes.

After it has been ſufficiently ſcraped, they poliſh it with the ſkin of a ſea-dog, wax, and a bruſh, or poliſher of ſhave-graſs; which is the laſt preparation.

Julio Ceſare VENENTI, an engraver of Bologna, uſed this mark.

VENERATION. Admiration begets eſteem, and eſteem Veneration, in which the eye-brows will be depreſſed in the ſame manner as in eſteem; the face will be alſo bowed downwards, but the eye-balls will be more turned up under the brows.

The mouth will be open, and the corners drawn back but a little lower than in that of eſteem.

This depreſſion of the mouth and eye-brows indicates a ſubmiſſion and reſpect of the ſoul to an object that ſhe believes to be above her: The eye-ball turned upwards ſeems to intimate the elevation of the object conſidered, which it acknowledges to be worthy of Veneration.

But, if the Veneration is cauſed by an object that claims our faith, in that caſe all the parts of the viſage will be lower depreſſed than in the former action.

The

The eyes and mouth will be closed; shewing, by this action, that the exterior senses have no part therein.

As to the posture of the body, it shall be more bowed in Veneration than in esteem, the arms and hands almost joined, the knees on the ground, and all the parts of the body shall indicate a profound respect.

But, in an action which shews faith, the body may be bowed intirely down; the arms folded, and joining to the body; the hands crossed the one over the other, and the whole posture ought to shew a profound humility. See plate XXI.

VENUS. Horace and Virgil represent the chariot of Venus as drawn by two white swans, which Statius says are attributed to her, as being most mild, innocent, and harmless.

Pausanias describes her as drawn in a coach through the airy passages by two white doves, which are called the birds of Venus.

The ancients represented her in the form of a most beautiful and young woman, standing upright in the shell of a large fish, drawn by two strange fishes.

She is also depicted with yellow hair, clad in a black, scarlet, or dun-coloured robe.

Praxiteles, an excellent statuary of the island of Gnidos, made her image naked, without any cloaths; and the same was done by the Grecians.

By this was intimated, that all licentious and libidinous persons, by reason of their inordinate lust, were like beasts, deprived of sense, and left as it were naked, and despoiled of reason and understanding; and oftentimes also stripped thereby of their riches, goods, and estates.

Lactantius tells us, that the Lacedæmonians made the image of Venus armed like a warrior, holding in one hand a spear, and in the other a shield or target.

This they did on account of a certain victory, which the Lacedæmonian women obtained over their enemies, the people of Messenia; which success, they imagined, proceeded from the power and assistance of Venus, as inspiring the hearts of these women with courage, stoutness, and resolution.

VERDIGREASE, } is a kind of rust of copper, of consid-
VERDIGRIS, } rable use in painting for a green colour.

It is a preparation made of plates of copper, and the husks of grapes well saturated with wine, put up in earthen pots, and disposed layer upon layer, i. e. first husks and then copper; and this repeated till the vessel is moderately filled.

These pots are afterwards set in a cellar, where they are let to stand some time, and then taken out, to gather the Verdi-

greaſe, which is a green ruſt, with which the plates are covered all over.

The greateſt part of the Verdigreaſe uſed in Europe comes from Languedoc in France, being made of the huſks of the grapes of that country, and is brought over in cakes of about twenty-five pounds weight.

The cryſtalliſed Verdigreaſe, cryſtals of Verdigreaſe, or diſtilled Verdigreaſe, is Verdigreaſe diſſolved in diſtilled vinegar, and afterwards filtred, evaporated, and cryſtalliſed in a cellar. This is uſed by painters to make a green colour, eſpecially in miniature; it makes a beautiful tranſparent green for japanning on glaſs, being ground with oil of turpentine, and mixed with common varniſh, and leaf gold or ſilver laid on the backſide of it.

This commonly comes from Holland, or Lyons in France, and on ſticks in form like our ſugar-candy. To be good, theſe cryſtals muſt be beautiful, clean, and tranſparent, very dry, and as free from ſticks as poſſible.

Cryſtals of Verdigreaſe are likewiſe made by diſſolving copper, granulated in ſpirit of nitre, and afterwards evaporating to a ſcum or pellicle, and ſetting it in a cellar to cryſtalliſe.

Verdigreaſe is the plague of all colours, and enough to ſpoil a whole picture in oil-painting, if the leaſt part of it enters into the priming of the cloth; yet it is a beautiful and agreeable colour; ſometimes it is calcinated to take off its malignity, but it is dangerous to calcinate, as well as red arſenic; and, let it be ever ſo well purified, it muſt be uſed alone, for it will ſpoil all the colours that are mixed with it.

It is made uſe of, becauſe it dries very much; and only a little of it is uſed, mixed in blacks, which never dry alone.

The painter ought to take care that he does not uſe the pencil with which he painted Verdigreaſe in any other colours.

VERDETER, VERDITER, VERDITURE, } is properly a native mineral ſubſtance, of a ſtony conſiſtence, and of a blue colour, but ſpangled with little ſhining points like gems; it is found in the mountains of Hungary and Moravia, and is the ſame that is alſo called lapis Armenius.

The green uſed by the painters, and called Verditer, ſhould be made of this ſtone well-ground and cleanſed by waſhing.

But, this ſtone being very rare, the Verditer commonly uſed is not a native, but a factitious ſubſtance; which ſome ſay is prepared by caſting wine or water upon new copper, as it comes red-hot out of the furnace, and catching the ſteams that riſe from it upon copper-plates: Others again ſay, it is prepared by diſſolving copper-plates in wine, much after the manner of Verdigreaſe.

But

But the method of making it in England is as follows:

The refiners pour a ſufficient quantity of their copper water on a hundred pounds weight of whiting, ſtirring them well together every day for ſome hours, till the water grows pale; then they pour that off, and ſet it by for further uſe, and pour on more of the green water, repeating this till the Verditer is made; which they then take out, and lay on large pieces of chalk in the ſun to dry.

The water which is poured off from the Verditer, which remains at the bottom of the tub, is put into a copper, and boiled till it comes to the conſiſtence of water-gruel; now conſiſting principally of ſaltpetre reduced, moſt of the ſpirit of vitriol being gone with the copper into the Verditer: And a diſh full of this, being put into the other materials for aqua-fortis, is rediſtilled, and makes what they call a double water, which is near twice as good as that made without it.

Henry VERGAZOON, was a Dutch painter of lands and ruins, but chiefly the latter, which he performed exceeding neatly; his colouring was very natural, but his landſcape part commonly too dark and gloomy, appearing as if it had been drawn for a night-piece: He painted ſometimes ſmall portraits, which were very curious. He left England ſeveral years ago, and died in France.

VERITY, is repreſented, in painting, &c. by a naked beauty, holding a ſun in her right hand, in her left a book open with a palm, and under one foot the globe of the world.— Naked, becauſe downright ſimplicity is natural to her; the ſun ſhews her great delight in clearneſs; the book, that the truth of things may be found in good authors; the palm, her riſing the more ſhe is depreſſed; the globe, that, being immortal, ſhe is the ſtrongeſt of all things in the world, therefore tramples on it.

VERMILION, is a very bright beautiful red colour, in great eſteem among the ancients under the name of minium.

There are two kinds of it, the one natural, and the other factitious.

The natural is found in ſome ſilver mines in the form of a ruddy ſand, which is afterwards prepared and purified by ſeveral lotions and coctions.

The artificial is made of mineral cinnabar, ground up with aqua-vitæ and urine, and afterwards dried.

It is alſo made of lead burnt and waſhed, or of ceruſs prepared by fire: But this is not properly called Vermilion, but red lead.

Yet this laſt, however, ſeems to be the real Vermilion of the ancients, and both apothecaries and painters ſtill give it the name to enhance the price.

We have two kinds of Vermilion from Holland, the one of a deep red, the other pale; but it is the ſame at the bottom: The only difference of colour, proceeding from the cinnabar's being more or leſs ground: When the cinnabar is finely ground, the Vermilion is pale; and this is preferred before that which is coarſer and redder.

Vermilion ſome diſapprove of, to be uſed in painting prints, unleſs it be prepared by waſhing, as is directed for minium; and then chiefly for dry painting, except it be by thoſe perſons who can uſe it moderately, and with judgment; for all heavy colours will drown the ſhades or ſtrokes of the engraver.

Andrea VEROCCHIO, was the firſt who found out the taking off and preſerving the features of the face in plaiſter of Paris, born in the year 1431, lived at Florence, excelled in hiſtory, muſic, ſculpture, and architecture; died in the year 1487, aged fifty-ſix years.

VES. S. ſtands for Veſpaſiano Strada of Rome.

VICTORY, is repreſented, in painting, &c. by a young lady cloathed in gold, having wings on her ſhoulders, holding in her right hand a garland of laurel and olive, in her left hand a palm-branch, ſitting upon a multitude of trophies of arms and ſpoils of enemies of all ſorts.—The laurel, olive, and palm, are ſigns of honour and Victory amongſt the ancients, as their medals ſhew.

Æneas VIGHI, of Parma. His other marks are Æ. E. V. Æ. V.

VIGILANCE, is repreſented, in painting, &c. by the ſame deſcription as Care, whither you are referred. Every body knows that the lamp, book, and crane, denote Vigilance. The cranes flying together, when they would reſt ſecurely; one of them holds a ſtone in its claw; the others, ſo long as the ſtone does not fall, are ſecure and ſafe by the Vigilance of their companion; and it falls only, when the guards fall aſleep, at the noiſe of which they fly away.

Francis VILLAMENA, of Aſſize, an excellent and expeditious engraver. He likewiſe uſed the following letters F. V. F. or F. Villam. F.

Lionardo da VINCI, of noble deſcent, born in the year 1445, ſcholar of Andrea Verrocchio, lived at Florence, excelled in painting hiſtory, portraiture, architecture, and ſculpture; died in the year 1520, aged ſeventy-five years.

Gio Battiſta VIOLA, born in the year 1576, ſcholar of Annibal Caracci, lived at Rome, &c. excelled at hiſtory, and chiefly at landſcape; died in the year 1622, aged forty-ſix years.

Of dying VIOLET *colours.* See PURPLE.

To make a VIOLET *colour in grain out of a ſad blue.* Take fair

water, clear bran liquor, of each equal parts, a ſufficient quantity; alum nine pounds and an half, tartar five pounds and an half; melt them, and enter thirty pounds weight of wool, yarn, ſtuff, cloth, &c. of a ſad blue colour: Boil four hours, cool, waſh it in cold water. Take freſh bran liquor a ſufficient quantity, cochineal and tartar both in fine powder, of each fifteen ounces; mix, enter your cloth, handle it to a good heat, boil it two hours, handle it well, take it out and waſh it, and it will be a pure Violet or purple colour.

An excellent VIOLET *colour.* Take calcined tartar and turnſole, of each a pound; beat them and tie them up in a linen cloth, and ſteep them twenty-four hours in water, and then put in the matter which you would have to be of a Violet colour.

To dye ſtuffs, &c. of a beautiful VIOLET *colour.* Alum the ſtuffs with half a pound of alum, two ounces of tartar, and a handful of madder in clear rain water made hot, for every pound of ſtuff; let theſe ingredients be ſtirred well together, and when they are diſſolved and begin to boil put in the ſtuffs to be dyed, boil them for half an hour, take them out, let them cool, and rinſe them out.

Put freſh water to the liquor, and put in a quarter of a pound of brown wood in a clean bag, boil it for an hour and an half, and then put in the goods again, and boil it for an hour and an half; then take it out, and put into the hot ſuds a quarter of a pound of verdigreaſe, it being firſt diſſolved in warm water. Stir it well about, and then put in the ſtuffs again, ſtirring it about for a quarter of an hour, until it begins to boil; then take it out, cool and rinſe it, and it will be of the moſt beautiful Violet colour.

To dye thread of a laſting VIOLET *colour.* Boil half a pound of tartar, half a pound of alum, two ounces of braſil wood, and half an ounce of ſalt-petre together; then lay the thread four hours in the liquor; then rinſe it out and dry it. Then brown it as follows:

Boil a pound of brown wood, and half a pound of braſil, in a large veſſel; and uſe the dye in the following manner:

Divide it into four equal parts; remembering that each part is to be uſed warm, and the thread dyed after each operation; and, when the firſt part is uſed, let there be added to it half an ounce of ſumach, and one drachm of ſalt-petre.

The ſecond time, a quarter of an ounce of calcined tartar, and one drachm of verdigreaſe powdered.

The third time, a quarter of an ounce of ſumach, and one drachm of ſalt-petre.

The fourth and laſt time, if the thread remains a little reddiſh,

pour in a quart of hot ſharp ley, and you will find the thread of a beautiful Violet brown.

But if the thread be boiled in alum, and blued with woad, and then browned with braſil, the colour will be more beautiful and laſting.

To dye a good crimſon VIOLET. Firſt dye the ſtuff a deep blue-green, and boil it as for right crimſon; rinſe it very clean out of the ſuds, and finiſh it with three drachms of cochineal, in proportion to one pound of ware, and you will have a right good colour.

A brown VIOLET *colour*. For twenty-five yards of fuſtian, frize, or other goods, take three quarters of a pound of alum, half a pound of tartar, half an ounce of ſal armoniac; boil the ſtuff in this liquor for two hours, rinſe it out in clean water, and dry it in order to blue it, and dip it in a deep laſting blue with woad or indigo, then rinſe it clean and dry it.

To dye ſilk of a VIOLET *colour*. For every pound of ſilk take one pound of blue, or Provence wood; boil and ſtir the ſilk in it, as in the red dye; put into the laſt ſuds a few galls, then rinſe the ſilk and dry it.

A good laſting VIOLET. To every pound of ſilk take one pound of galls and one pound of blue wood; and put in the ſilk when the ſuds are cold, for, the colder the ſuds, the bluer the Violet colour will be, which muſt always be bluer than the tawneys: Let it lie a night in the ſuds, then in the morning rinſe and dry it.

From the following dye are compoſed the beſt tawneys, grey and crimſon goat-colours.

To dye ſilk a VIOLET *brown*. Let the ſilks be alumed as for tawny; and to every pound of ſilk take two pounds of Provence wood, boil it in a bag for a full hour; then take it out, put in the ſilk, boil that for an hour, and then take it out, and put in the bag again; then rinſe it in a ley, as is directed to be made for other colours, and without bole armoniac, and after that in running water.

VIRGIN *copper*, is that which never has been melted down.

VIRGIN *gold*, is gold as it is got out of the ore, without any mixture or alloy; in which ſtate it is ſo ſoft, that it will take the impreſſion of a ſeal.

VIRGIN *mercury*, is that which is found perfectly formed and fluid in the veins of mines; or at leaſt is got from the mineral earth by mere lotion, without fire.

VIRGIN *oil*, is that which oozes ſpontaneouſly from the olive, &c. without preſſing.

VIRGIN *parchment*, is properly that made of a kind of cap or caul, which ſome children bring into the world on their heads.

But the term is alſo uſed for that made of the ſkin of an abortive lamb or calf.

VIRGIN *wax*, is ſuch as has never been wrought, but remains as it came out of the hive.

VIRGINITY, is repreſented, in painting, &c. by a pretty girl cloathed in white, and crowned with gold, her waiſt ſurrounded with a girdle, with an emerald, made of white wool, which in old times maids wore, called zona virginæa, not to be looſed, but by their huſbands on their wedding-night.— The white cloths and the emerald ſhe has about her, and golden crown, denote purity.

VIRGULA *divinatoria*, is a forked branch in form of a Y, cut off a hazle-tree; by means of which, ſome pretend to diſcover mines, ſprings, &c. under ground.

The method of uſing it is as follows: The perſon who carries it walks very ſlowly over the places, where he imagines any mines or ſprings to be, and obſerves the rod to dip or incline to the ground; ſuppoſing that the effluvia which exhale from the metals or water impregnating the wood, cauſe a dipping or inclination of it; which is the ſign of a diſcovery.

Though ſome diſpute the matter of fact, and deny it to be poſſible; yet others, ſeeming to be convinced by the great number of experiments alledged in its behalf, look out for the natural cauſes of it.

Theſe authors ſay in behalf thereof, that the corpuſcles riſing from the minerals or ſprings, penetrating the rod, determine it to incline or bow down, in order to render it parallel to the vertical lines, which the effluvia deſcribe in their riſe.

VIRTUE, is repreſented, in painting, &c. by a comely virgin, having wings behind, a ſpear in her right hand, and in her left a crown of laurel, and a ſun in her boſom.—Young, becauſe ſhe never grows old, her actions commencing into habits; the wings ſignify her ſoaring aloft, far above the vulgar; the ſun, that his Virtue inſpires Virtue to the whole body; the laurel, that ſhe is ever green, being proof againſt vice; the ſpear, dignity ruling over vice.

Timotheo VITE *de Urbino*, born in the year 1470, imitated Raphael, lived at Urbino and Rome, excelled in hiſtory-painting; died in the year 1524, aged fifty-four years.

VITRIFICATION, } is the act of converting a body into
VITRIFACTION, } glaſs, by means of fire.

Of all bodies, the aſhes of fern, ſand, bricks, and pebbles vitrify the moſt eaſily: And, accordingly, of the aſhes of fern principally is glaſs made.

All metals, and even almoſt all natural bodies, being thoroughly heated in the fire, vitrify or turn to glaſs. And this

Vitrification is the laſt effect of fire; after which the moſt intenſe heat of the largeſt burning-glaſs will make no further alteration.

VITRIOL, is a kind of foſſil or mineral ſalt, chiefly found in copper mines; but is more properly ranked among the claſs of ſemi-metals, as having a metallic matter mixed or combined with its ſalt.

Vitriol is defined by Boerhaave to be a ſaline, metallic, tranſparent glebe; diſſoluble in water, and fuſible and calcinable by fire.

It is called by different names, according to the different places where it is dug; and the Vitriols of thoſe alſo differ from each other in both name and colour; ſome being white, others blue, and others green.

Roman Vitriol, for inſtance, is white; that of Cyprus blue, and that of Piſa and Germany greeniſh.

White Vitriol partakes but little of any metal; blue partakes of copper, and green of iron.

According to Boerhaave, Vitriols conſiſt of a metallic part, with a ſulphur adhering to a menſtruous acid and water.

In blue Vitriol, the metal wherewith the acid, &c. is joined is copper.

In white Vitriol, commonly called white copperas, it is mixed with lapis calaminaris, or ſome ferrugineous earth intermixed with lead or tin.

In green Vitriol the acid is joined with iron.

Theſe Vitriols are generally factitious, being only a kind of cryſtals, drawn by the means of water from a ſort of marcaſite uſually found in mines, and called by naturaliſts pyrites.

Roman Vitriol is made by expoſing theſe pyrites to the air, till ſuch time as they calcine, and change into a greeniſh and vitriolic calx or duſt.

In this ſtate they are thrown into the water, and are afterwards reduced into that kind of cryſtals, ſent to us from Italy, by boiling and evaporation.

All the other Vitriols are made after the ſame manner; that is, much after the ſame manner as alum is made in England, or ſalt-petre in France.

For green Vitriol they add a great number of pieces of iron to the liquor in the boiling; theſe raiſe a great ebullition. As ſoon as the iron is diſſolved, they evaporate the diſſolution to a certain degree, and ſo let it cryſtalliſe.

The cryſtals being formed, there remains a thick, reddiſh, unctuous ſtyptic and aſtringent liquor.

A ſolution of Vitriol, mixed with a tincture of galls, becomes inſtantly

inſtantly exceeding black, and it is this is the common writing-ink.

Vitriol enters into the compoſition of aqua-fortis.

Some naturaliſts hold Vitriol to be the root or matrix of copper; becauſe in the copper mines they never dig deeper than the glebe, out of which the Vitriol is drawn.

Tartar of VITRIOL, is had by mixing oil of Vitriol with oil of tartar per deliquium, procured by the firſt calcining; then diſtilling it: A ſalt precipitating to the bottom, which, being ſet to exhale and cryſtalliſe, is the tartar of Vitriol.

Metallic VITRIOLS. It is to be obſerved, that all metals may be converted into Vitriols, by diſſolving them with acid ſpirits, and letting them ſtand; though it is very difficult to obtain Vitriol of gold and ſilver, by reaſon that theſe metals are not eaſily diſſolved by the ſpirit; but Vitriols of iron and copper are eaſily had.

The way of purifying VITRIOL *to make aqua-fortis ſtronger and more penetrative.* We have promiſed in the preceding pages to ſhew the way of purifying Vitriol; which conſiſts of taking away the yellowneſs, which alone hinders the good effects it is capable of producing. Take Roman Vitriol, the beſt you can get, diſſolve it in common warm water; then let it ſtand three days; then filtre it, and fling away the yellow fæces; then evaporate in glaſs bodies two thirds of the water, and put the remainder into earthen glazed pans, and ſet it in a cool place for the cryſtal of it to ſhoot; which, in twelve hours time, they will do about the brims of the pans in little tranſparent pieces, like natural cryſtal of an emerald colour: At the bottom there will remain a ſulphureous ſediment, which muſt be carefully ſeparated and caſt away.

Then you muſt take all thoſe little green cryſtals and diſſolve them again in warm water as before, and then filtre and evaporate them in the ſame glaſs bodies; and ſet them again to cryſtalliſe as before in a cool place, taking care to ſeparate all the yellow fæces you find. Reiterate this proceſs of diſſolving and filtring, evaporating and cryſtalliſing the third time; then you will have a well-purified and refined cryſtal.

We will here add, for the ſake of the curious, that thoſe who make uſe of Vitriol inſtead of roch alum to make aqua-fortis, the preparation whereof we have ſhewn elſewhere, ought to take a ſpecial care in the diſtillation, that, as ſoon as the red fumes are paſt, all the ſpirits of nitre are raiſed, and that then the fire muſt be extinguiſhed: For that which follows after is only a ſpirit of Vitriol, which hinders the operation of the ſpirit of nitre in the ſolution of metal.

You may alſo draw a parting water in twelve hours time, as

ſome refiners do, during which time but little ſpirit of Vitriol can ariſe with their fires.

ULTRAMARINE, is a rich and beautiful blue uſed by painters. It is extracted from an azure ſtone, commonly called lapis lazuli, which is an opaque ſtone of a fine ſky colour or Turkiſh blue; or like the blue flowers that grow in corn fields; it is embelliſhed with ſmall ſtreaks and ſparkles of a gold colour.

This ſtone comes from Perſia and the Eaſt-Indies, and, as ſome ſay, from Africa; but, if from the laſt, it is in no great quantities.

There is alſo a kind of lapis lazuli found in Germany and Hungary; but not fixed, though as hard as that from Aſia, which they call leſurſtein and its colour aſurbleau; but its colour changes in ſome time, and becomes greeniſh: However, it is uſed by painters.

The beſt lapis lazuli is that which is fixed; that is, can endure the fire without altering colour.

Before you proceed to extract your Ultramarine, take ſome account of the manner, to know whether the ſtone be good; for, unleſs it is ſingularly ſo, you will loſe your labour: Put pieces thereof on live coals, and blow them continually for an hour; if they retain their firſt hardneſs and colour afterwards, you may conclude them good; but, if they crumble between your fingers, they are naught. It may be tried otherwiſe in an iron ladle put into a furnace with ſome of the ſtone to heat, and ſo quench it in ſtrong vinegar; if the colour remains ſtill unchanged and ſplendid, you may aſſure your ſelf it is good.

When you have made this trial, calcine it, which, to do the eaſier, break the ſtone to pieces as ſmall as hazle-nuts, waſh them afterwards in warm water, and ſet them in a crucible, on a wind furnace, or into an iron ladle to re-unite; then caſt them into a glazed earthen veſſel of diſtilled vinegar to quench them in; do thus ſeven times, to prepare them by calcination for powdering, and to prevent their ſticking to the mortar.

Thus calcined, dry them well, and ſo powder them in a ſtone mortar well covered, and accordingly ſearce it with the ſame caution, as perfumers do their moſt delicate and fineſt powders, leſt the beſt ſhould go off and diſpel itſelf in the air: And thus preſerve this precious powder with all imaginable care.

Some derive its name Ultramarine of the Latin ultra, beyond, and marinus of or belonging to the ſea; q. d. beyond ſea, becauſe firſt brought into Europe from India and Perſia.

It is the common opinion, that the method of making it was firſt diſcovered in England by a member of the Eaſt-India company; who, having a quarrel with his aſſociates, made the ſecret public to be revenged of them.

To

To make a liquid for moiſtening and grinding the powder withal, &c. For moiſtening and grinding your aforeſaid powder of the ſtone, take a pound and an half of running water, and put this into a new earthen pot; add to it an egg-ſhell full of raw honey, boil it until it have no more ſcum; take the pot off, and keep this hydromel, or liquid, in bottles for uſe.

This done, take four ſcruples of the beſt gum dragon, grind it on your marble, with ſome of the hydromel, and then put it into a glaſs; add thereto as much hydromel as you find convenient to bring it to a violet colour, ſo cover it, and preſerve it for uſe. This liquid is good for your powder of lapis lazuli; if the colour be too violet, add the leſs hereof; if otherwiſe, the more, as your judgment or experience ſhall direct.

Put half a pound of powder at a time into a ſmall porphyry or marble veſſel, the larger the mortar the worſe; for you will loſe more, and be longer a grinding; pour leiſurely by little and little thereon ſome of your violet liquid, grind theſe together for a full hour, ſtill wetting it; you may uſe three or four ounces of liquid to the half pound of powder, and you will have it very good; you muſt take care of grinding it too long, for then it will loſe its colour.

When it is thus ground, dry it on a marble or flat ſtone, where the ſun does not come at all; cover it well to preſerve it from duſt; when it is dry, it will powder eaſily between your fingers, if it be rightly done; if ſo, let it alone on the marble, but if it be clammy, or ſtick, take it off, for it has ſtill ſome unctuoſity of the honey in it, which muſt be cleanſed away by a cement.

Your lapis being thus dry, waſh it well before you put it to the cement, for which you muſt uſe a glazed earthen baſon, round above like a barber's, and well glazed within; put your lapis therein, and pour thereon ſome of the mild lixivium hereafter mentioned, as much as will riſe above the ſurface four inches; waſh the lapis very well with your hands, and then let it ſettle, and it will precipitate. The liquid being cleared again, decant it into a large copper or earthen veſſel, then let the lapis dry in a ſhade in the ſame veſſel it was waſhed in, and ſpread it afterwards on the flat marble or porphyry, and there let it lie until quite dry: Thus it is prepared for mixing with the cement, of which we will give the preparation hereafter.

To prepare a mild and ſtrong lixivium for lapis lazuli. To make theſe lixiviums, take ten handfuls of vine ſtalk aſhes well ſearced; put this into a large veſſel that will hold thirty pounds of water, with a faucet at bottom; preſs the aſhes very well, and put to them twenty pounds of warm water. When it is ſunk to the bottom, open the faucet, ſo as it may only drop into an earthen veſſel;

veſſel; when it is all come out ſtop the hole, and ſtrain this lixivium through a felt ſtrainer, and ſo keep it in a glaſs, or glazed pot well covered: This is the ſtrongeſt lixivium.

Again, pour in, on the ſame aſhes, the like quantity of warm water, and do as before; ſo you will have an indifferent ſtrong lixivium, which keep as the former.

Do this a third time, and you will have the mild lixivium mentioned in the preceding page.

Theſe three are very uſeful both for moiſtening and to draw the powder of lapis lazuli from the cement; wherewith it muſt be mixed, as will be ſhewn anon: Which ſeparation being ſometimes hard to perform, we are obliged to have recourſe to theſe varieties of lixiviums ſtronger, or weaker, as we find them convenient for the purpoſe.

You may yet make another lixivium to take away the greaſineſs of the cement thus; boil calx of tartar, as much as you pleaſe, in clean water, for about a quarter of an hour, and keep it for uſe as the former. This is excellent for waſhing the lapis lazuli with; it ſtrengthens and improves the colour thereof.

It muſt be remembered that there always remains ſome of your colour in the waters, or lixiviums, wherein the lapis lazuli is prepared throughout all the proceſs; you muſt therefore have a very large veſſel of braſs, or earthen ware, glazed and poliſhed very well at bottom, wherein muſt be three holes; one in the middle of the ſide, the next a little lower, and the laſt about two inches from the bottom; ſtop the holes without-ſide very cloſe, to prevent leakage.

Then pour all your waters into this; though you then perceive no colour at all, yet after ten days you will have it at bottom, whither it will deſcend gently; and to get it you muſt go artificially to work, firſt opening the firſt cock or hole, and let out the water above that, before you open the other two; and thus you may get the colour without muddying, or loſing any by the waters, which mix with the reſt.

To make ſtrong cement to mix with lapis lazuli, to ſeparate the finer and better part from the other. One cannot ſo eaſily part the finer lapis lazuli from its groſſer parts, without making uſe of this cement: Take four ounces of very pure and clear Venice turpentine, ſix ounces of roſin of the pine, ſix ounces of Grecian pitch, three ounces of very good maſtic, three ounces of freſh wax, an ounce and an half of linſeed oil cleanſed, as ſhall be directed.

Put the turpentine into a new glazed earthen pot, very clean, to diſſolve over a ſlow charcoal fire, and continue ſtirring it with a wooden ſpatula; throw into this, by degrees, the roſin of the pine, in ſmall pieces, and ſtir it ſtill very well; thus put in ſucceſſively the pitch, the maſtic in powder, and laſt of all the wax

ſliced

ſliced ſmall, ſtirring all continually about to mix and incorporate. Take great care of your fire, leſt the cement ſhould blaze or burn, all the ingredients being hot of themſelves, and combuſtible. Having well incorporated them, pour in the linſeed oil, ſtirring it as before, and ſo let it boil gently for a quarter of an hour.

To try whether the cement be enough, drop ſome of it off the ſpatula into a veſſel of cold water; if it ſpread, it is not enough; but, if it do not, it is ſufficiently boiled; ſo take it off. Or you may wet your fingers, and take a drop thereof, roll and draw it out in length; if it ſnaps and breaks of itſelf, it is a ſign that it is enough: Take it off, and pour it boiling hot into a filtrating bag ſteeped before in hot water; take care to let it go all through into a veſſel of cold water, and, for the better ſecurity, ſqueeſe it from top to bottom with two flat ſticks, that none may remain in your bag. Afterwards work it well with your hands, till all the water is drained from it, and, becauſe being hot it may ſtick to your fingers, you may anoint them with ſome of the linſeed oil.

The cement being thus prepared, keep it in a veſſel of cold water, ſhifting your water every day, or every ſecond day; and by this method you may keep it for ten years.

To make a weaker cement for ſeparating the colours of lapis lazuli.

This ſecond cement, which is the ſofter and milder, ought to be firſt employed on the powder of lapis lazuli; it draws the colour much quicker and better than the ſtrong cement, which ought not to be uſed till after the milder; the whole ſecret of ſeparating the colours conſiſting in uſing the cements; for, without a due care hereof, it cannot be done perfectly.

To make this cement, you muſt take four ounces of very pure turpentine, four ounces of roſin of pine, ſix ounces of Grecian pitch, one ounce of freſh wax, ſix drachms of linſeed oil purified; mix and incorporate them ſucceſſively as before. Obſerve only, that this is ſooner done than the former, becauſe it is weaker, and will give the colour ſooneſt; therefore you muſt manage accordingly.

To purify linſeed oil. The uſe we have for linſeed oil in our cement, obliges us to give this preparation, and way of purifying it, whereby it is made more fit for our purpoſe.

Take good and clear linſeed oil, of the colour of ſaffron, and put it into a glaſs, ſhaded like an ox horn, with an hole at bottom to let out the water, which you muſt mix with the oil, letting them ſettle until the oil riſes to the ſurface; then open the hole, and let the water out, and the oil remain behind. Then ſhake the oil again, with more freſh water; let it ſettle, and the water run out as before; do thus eight or ten times, till the water comes out as clear as it went in, and ſo the oil will be pure and

and fit for your uſe; keep it well ſtopped in a glaſs bottle. If you cannot get linſeed oil, you may uſe oil of bitter almonds, without purifying, for it needs none; but take notice, the linſeed oil is beſt of any, though cheaper than the other.

How to incorporate the powder of lapis lazuli with the ſtrong, or weaker cement. We have already given the way to prepare the powder for mixing with the cement, to extract the colours; we now come to ſhew how to mix it with the cement, in order to extract the Ultramarine from them for painting.

Take a pound of the powder, and the like quantity of cement, obſerving always to take the firſt that was worked with the hands; cut the cement ſmall, and, the pieces being a little wet, put them into a glazed earthen pot, over a fire of red hot aſhes to melt, and take care it does not boil; if it ſhould, you muſt prevent the damage which it might cauſe, by putting in ſome linſeed oil. The cement being thus melted, anoint all your ſpatula over, from the handle downwards, with the ſame oil, and ſo put in the powder by very little quantities, and taking a great deal of time, that they may the better incorporate; and be ſure to ſtir it all the while very well with the ſpatula, ſo as to make it all alike, until it become like an ointment or ſalve; then take off the pot, and throw the ſtuff boiling hot into an earthen baſon of cold water, and at that very inſtant take off all that ſticks to the ſides of the pot. When it is cold enough to be handled, if it appears well coloured, it is a ſign you have worked it well; this done, rub your hand with linſeed oil, and work it as they do a paſte of bread or dough, for one hour, that it may be thoroughly compact. The longer you work it, the better and eaſier the colour may be drawn; afterwards make it up like a loaf or brick, and ſet it in an earthen diſh to dry, pouring thereon ſome freſh water; let it ſteep for fifteen days, the longer the better for extracting the Ultramarine.

To extract the ULTRAMARINE. Take the loaf of cement and powder, waſhing it in the ſame water very well with your hands; weigh it to know the quantity of oil it requires, and put it into an earthen bowl or diſh, very ſmoothly glazed, rubbing firſt the bottom with your linſeed oil; then pour in water ſcarce warmed, until it ariſe two inches above the matter; let it ſtand in this condition a full quarter of an hour, or leſs in the ſpring time; pour this water afterwards into the veſſel before mentioned, adding more warm water to your matter, and ſo it will ſoften; continue thus whilſt there remains any tincture thereon; by this means all the ſubſtance that is good for any thing, will be ſeparated from the cement, which cannot be done otherwiſe.

Whilſt it is imbibed in the warm water, you muſt move and roll it gently round with two ſticks, or ſpatula's of box, or any other

other well poliſhed wood, rounded at the ends ſmooth like a walnut; let them be about an ell long, and an inch thick. Whenever you perceive the matter ſtick to the bottom of your diſh, rub your hands with linſeed oil, and ſtir it about leiſurely ſo as to colour the water, which you muſt put along with the former, in the mean time holding up the matter with your ſtaves, leſt it ſhould ſtick to the veſſel.

Take notice that a little ſteeping at firſt will tinge the water very much, and, when the cement is juſt yielding its colour, it will diſcover certain bluiſh ſtreaks on the water like the ſun's rays, and then you muſt ſtrain this water out among the other, through a ſearce, that the groſſer part of the cement may remain; afterwards pour in by little and little the freſh warm water, ſtirring the cement eaſily, that it may not dilate too much, and give its colour all at once. After you have thus ſtirred it about five or ſix times, make it again into a maſs, by which means you will ſee how much it is diminiſhed, and what quantity of colour it has given.

If the lapis be good, you will find the firſt ſteepings yield about four or five ounces of Ultramarine, which keep apart by itſelf as the beſt and fineſt colour, though it appear groſſer than the others of this ſort, by reaſon of the gold-coloured veins, which are peculiarly therein.

For the ſecond, whereof you will have three or four ounces, you muſt follow the proceſſes aforementioned; this indeed will be finer than the other, but not ſo good a colour; keep it alſo by itſelf.

Draw off a third, and this will be ſtill finer than the former, but paler, and more bright coloured. You muſt ſtill purſue the ſame directions to extract it, letting your water be but half lukewarm; and take care to manage the cement dextrouſly with the ſpatula's, and ſo preſerve the colour apart.

You may extract a fourth colour after this rate, but the water muſt be hotter, and you muſt preſs the cement very well with the ſpatula's to ſqueeſe out the colour; and, if mere water will not do, make uſe of the mild lixivium. This laſt colour will be greyiſh or aſh-coloured, and of no great value, and therefore not at all to be mixed with any of the reſt.

Obſerve here that you cannot take up leſs than eight hours full to extract the colours, nor leſs than ten or twelve to allow the water for ſettling; and, if you perceive the colour does not come out free enough with the warm water, add a third part of our mild lixivium, and, if that does not do, uſe all lixivium, but let it be cold; and, when that fails too of effecting it ſufficiently, you muſt make a lixivium of wine-ſtalk aſhes, and, this being ſtrained, let it boil for half a quarter of an hour, until it be ſharp enough

enough to bite your tongue; and then let it ſettle and grow clear; this is your laſt ſhift for extracting your colour, and, with this heated, waſh your cement very well, and ſet it a ſide. The whole deſign of all this trouble is only to ſerve for obtaining the greater quantity of Ultramarine, and this conſiſts in the goodneſs of the lapis lazuli and the cement, which the circumſpection and care taken in all their preparations muſt advance.

The method of cleanſing the ULTRAMARINE *when it is ſeparated from the cement.* After you have extracted all your colour out of the cement, and the water quite ſettled and ſeparated from it, pour on ſome of the mild lixivium before preſcribed, and waſh it with your hands, but do not rub it between them; thus you will take away all the greaſe of the cement; afterwards waſh it three or four times in fair water, and let the waters ſettle well before you put them into their proper veſſels.

Or you may purge the Ultramarine thus: Take the yolks of pullets eggs, that have been fed only with corn, and not with greens; prick theſe with a pin, and ſo moiſten the colours, kneading the maſs with your hands, and waſhing it afterwards with your mild lixivium, until the lixivium falls off clear again. This done, waſh them three or four times over with fair water, letting the waters ſettle well before you put them into their veſſels.

This laſt way of purifying the Ultramarine is very effectual; but here is another help to be uſed with it, which is a very great ſecret, and performed thus: After the colours are quite waſhed according to former directions, as well as poſſible, you muſt caſt therein, by little and little, a proper quantity of ox gall, rubbing it by degrees with your hands; waſh them often in clear water, and you will have the Ultramarine in full perfection.

To ſtrain off the ULTRAMARINE *already waſhed and purified.* It is neceſſary to ſtrain off the Ultramarine, and the reſt of the colours, that if any greaſe, or unctuoſity of the cement, remain, it may be taken quite away, for theſe colours require a perfect and extraordinary purification.

For this purpoſe take a fine ſearce, and pour thereon the laſt waters, with which you waſhed the Ultramarine, and ſtrain them afterwards through another fine ſearce, and a third time through red quintain or crape; but you muſt obſerve, when you ſtrain them, to let them ſtand till you perceive them limpid and clear, and ſo ſoak off the water dextrouſly with a ſponge, and be ſure not to ſtrain them promiſcuouſly all together.

This being done to all the waters, let your colours ſettle in their proper veſſels, and dry in the ſhade; when dry, put them into little leather bags; tie theſe cloſe, rubbing them and preſſing them with your hands; this will make them very ſubtile,

and

and, when the bags are opened, they will ſhew much fairer than before.

To correct the colours before prepared. Few perſons, unleſs ſuch as are very curious of their works, make any uſe hereof, becauſe of the time it takes up, though it would turn very much to their account; for one ounce of this colour corrected will go farther than three that are not.

If you would make your colours before prepared much finer and effectual than they are, mix them again with a ſtrong cement, and let them remain therein for three days; afterwards proceed, according to the laſt directions, to ſeparate them again; reiterate this over again, and you will have them exceeding good; and, though they diminiſh ſomewhat in weight, yet that loſs will be repaid conſiderably in the beauty and value.

Another way to make ULTRAMARINE, *and draw off the colours with more expedition.* This method of making Ultramarine is much more ready than the former; and experience will ſhew whether the colour be a gainer or loſer thereby.

Take a pound of lapis lazuli, calcine it in a crucible, and quench it afterwards in vinegar, ſo let it dry, and then reduce it to a very fine powder; grind it on a porphyry with fair water, and ſet in a glazed earthen veſſel in the ſhade, until it be dry; if you find it coagulated all in a maſs, you muſt powder it again.

This done, make a cement of three ounces of Grecian pitch, four ounces of roſin of the pine, three ounces of maſtic, three ounces of frankincenſe, two ounces of oil olive; ſet theſe over a ſlow fire in a ſmall earthen pot, into which pour firſt the oil, and when that is hot put in the roſin, then the pitch, then the incenſe, and laſt of all the maſtic, ſtirring them continually with the wooden ſpatula, and let them boil a little.

Having made the cement, get another earthen veſſel, and put therein the lapis lazuli, and pour on it the cement hot, ſtirring the whole together with the ſpatula very leiſurely, until they perfectly incorporate; let this ſtand a whole day, and, when you would draw off the colours, pour thereon boiling water, ſtirring it very ſmartly.

When it begins to cool, pour it out, and ſo put in more hot water; do this till the water begins to draw off the colour, and ſo continue until it be quite extracted; you may diſtinguiſh the waters, and ſo ſet them apart, and obtain the variety of colour as in the former way.

If your colour ſeems to be clammy and naſty, you may correct it thus: Add thereto tartar diſſolved in water, as much as will cover it, and let it reſt for one day at leaſt; waſh it in warm water, and you will by that means have it very correct, and well purified.

Another

Another way to make ULTRAMARINE. Granting the two former ways to be ſufficient, we will however here give a third, which we believe may as well be pleaſing to thoſe who are not ſatisfied with the other, as to ſuch perſons as have a curioſity for theſe ſorts of work.

Break the lapis into groſs pieces, as ſmall as nuts; ſet theſe in a crucible into a furnace, till they redden with heat, and caſt them into cold water; do thus ſix or ſeven times, and reduce them to impalpable powder in a porphyry mortar well covered, leſt the powder, which is very ſubtile, ſhould diſperſe in the air; and then ſearce it with a fine ſearce alſo covered.

After this, take roſin of pines, ordinary black pitch, maſtic, freſh wax, and turpentine, of each three ounces; of incenſe and linſeed oil, each one ounce; melt all together in an earthen veſſel, ſtirring them very well, that they may mix; this ſtuff, being well incorporated, caſt it into water, and keep it for uſe.

To each pound of lapis lazuli add ten ounces thereof, and ſet them to diſſolve in a pot over a ſmall fire, firſt melting the cement, and then caſting on the lapis lazuli by little and little, continually ſtirring the maſs with a ſtick, that they may mix inſenſibly together. Afterwards caſt the maſs into an earthen veſſel of cold water, and, anointing your hands with linſeed oil, mould it up into a number of cakes, or rolls, which leave in cold water for five days, ſhifting the water every other day.

This done, put them into a large and very clean glazed earthen veſſel, pouring on them ſome clean hot water; when that cools, pour in more hot, and do thus till the paſtils ſoften with the heat of the water; this done, put them into hot water, and let them be until it receive a bluiſh colour. Strain this water to receive the groſſer pieces, and ſo put it into another glazed earthen veſſel very clean, adding more to the paſtils, which ſtrain through a fine ſearce afterwards among the former; continue this until all the colour be extracted.

Your water muſt be only warm, otherwiſe it will occaſion a blackneſs in the colour, which is to be taken great care of.

All the coloured waters being in the veſſel, you may cleanſe them of any unctuoſity, by letting them reſt for twenty-four hours, in which time the colour will ſtick to the bottom; then you may pour off the water gently into another veſſel, and it will carry off the greaſe along with it; ſtrain it afterwards into the veſſel where the colour is through a fine ſearce, and all the greaſe will be left behind. Do thus thrice, ſtirring the colour very well every time you return the water to it, that the filth and greaſe may aſcend from it, and it will always ſtay in ſtraining on the ſearce behind the water.

This done, let the colour precipitate entirely, and pour off all the

the water very leiſurely, for fear of diſturbing it; dry this colour, and you will have delicate Ultramarine.

This blue is one of the richeſt and moſt valuable colours uſed in painting.

Thoſe, who prepare it, make uſually four ſorts, which is procured by ſo many different lotions or waſhings.

There is Ultramarine of the firſt ſort ſold for 11. ſterling an ounce, and of the laſt for about twelve or fifteen ſhillings.

Ultramarine muſt be choſen of an high colour, and well ground, which may be known by putting it between the teeth; and, if it feel gritty, it is a ſign it has not been well ground.

To know whether it be pure and unmixed, put a little of it into a crucible, and ſo heat it red hot; and, if the powder has not changed its colour after this trial, it is certainly pure; on the contrary, if there be any change, or any black ſpecks in it, then it has been adulterated.

Beſides this, there is another ſort called common, or Dutch Ultramarine, which is only ſmalt well ground and pulveriſed; the colour of which, when uſed by the painters, is much like that of true Ultramarine, though much leſs valued.

UNANIMITY, is repreſented, in painting, cloathed in a blue robe, mantle, and buſkins, with a chaplet of blue lilies.

UNDAUNTEDNESS, is repreſented, in painting, &c. by a vigorous youth in white and red, ſhewing his naked arms; ſeeming to ſtay for and ſuſtain the ſhock of a bull.—His arms ſhew his confidence in his own valour, to fight the bull, which, being provoked, becomes fierce, and requires a deſperate force to reſiſt him; for Undauntedneſs is the exceſs of bravery and ſtoutneſs; and we call a man undaunted, when, for ends propoſed to himſelf, he fears not what others uſually fear.

Civil UNION, is repreſented, in painting, &c. by a woman of a chearful pleaſant countenance, holding an olive branch in one hand, incircled with myrtle; the fiſh ſcarus in the other.—The olive and myrtle ſignify the pleaſure taken in the amicable correſpondence of citizens, for thoſe trees are naturally and mutually joined; ſo ought citizens to embrace each other. The fiſh, mutual love, for, if one of them ſwallows the hook, the others haſten to bite the line aſunder.

UNQUIET *life*, is repreſented, in painting, &c. by Siſyphus rolling a huge ſtone to the top of a mountain, which ſtill falls back again.—The mountain denotes the life of man; the top of it, the quietneſs and tranquillity to which we aſpire; the ſtone, the great pains every one takes to arrive at it. Siſyphus ſignifies the mind, which always breathes after reſt, and ſcarce has obtained it, but deſires ſtill; for ſome place it in riches,

ſome in honours, ſome in learning; this in health, that in reputation; ſo that it is found only by accident.

VOLUPIA, the goddeſs of pleaſure, was depicted as a lady of a pale and lean countenance, ſitting in a pontifical and majeſtic chair, embroidered and emboſſed with ſtars of gold, treading and trampling upon virtue.

F. De VORSTERMAN, was a diſciple of Harman Sachtleven, and an extraordinary curious and neat landſcape painter in little, in which he may very reaſonably be ſaid to have exceeded all the painters of his time. He performed his landſcapes with wonderful care and neatneſs after the Dutch goût. He ſpared no pains in his views, which commonly repreſent places on the Rhine; where he had ſtudied and accuſtomed himſelf to take in a large extent of hills and diſtance. The extravagant prices he demanded for his pictures hindered him often from being employed by king Charles II, who was pleaſed with his manner of painting; eſpecially that piece he made of Windſor caſtle, now extant in the royal collection. He accompanied Sir William Soames, ſent by king James II. on an embaſſy to Conſtantinople; but upon that miniſter's death he returned to France, and died. His deſign in going for Turky was to draw all the remarkable views in that empire; but he was diſappointed by his patron's death, without whoſe protection he durſt not attempt it, to the great regret of all lovers of art.

LAZ *Luke* VORSTERMAN, painter and engraver of Antwerp, was adviſed by Peter Paul Rubens to apply himſelf to engraving; he engraved the works of the ſaid Rubens, as alſo thoſe of Raphael and Vandyke.

Martin De VOS, born in the year 1540, ſtudied in Italy, lived at Antwerp, excelled in hiſtory; died in the year 1604, aged ſixty-four.

Simon VOUET, born in the year 1582, learned of his father. He lived at Venice, Rome, and Paris; excelled in hiſtory and portraits; died in the year 1641, aged fifty-nine years.

V. P. or
B. or P. or
J. S. P.
} were four marks uſed by John Sebald Beham, when he did not care to put his own name.

URANIA, is repreſented, in painting, cloathed in a mantle of azure, filled with lamps.

V. S. 1622, ſtands for Valentine Sezenius; the ſame mark was alſo uſed by Virgilio Sole.

V. S. I. ſignifies Ventura Salembini of Sienna, painter and inventor.

AN *Anthony Van* VUATERL, i. e. Anthony Van Vuaterl, inventor, is found in certain landſcapes

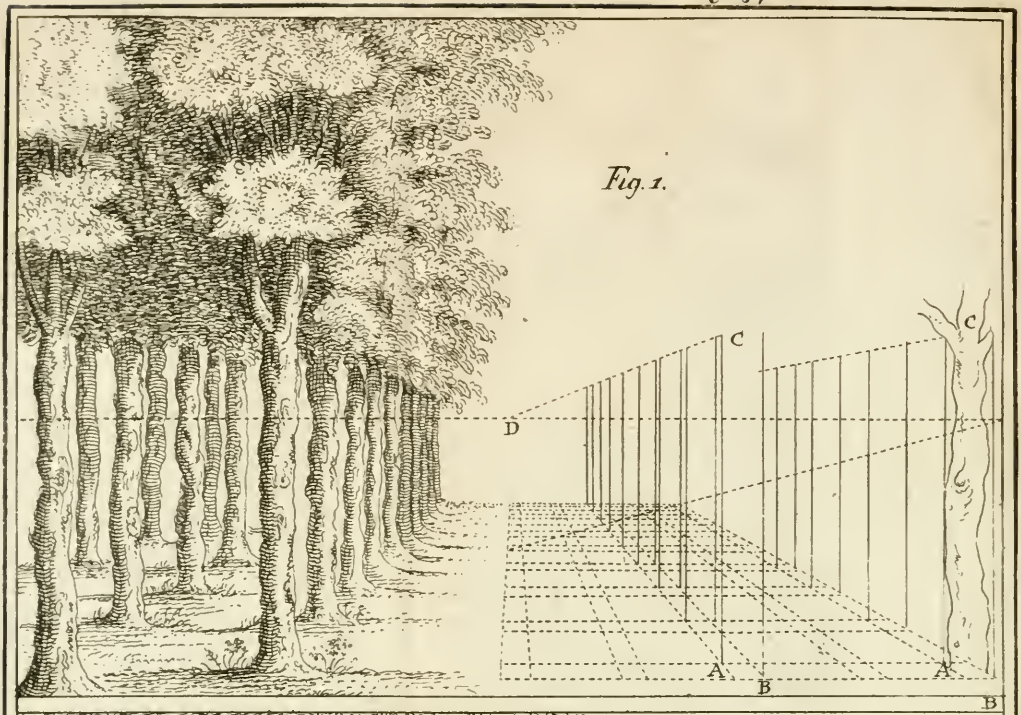


Fig. 1.

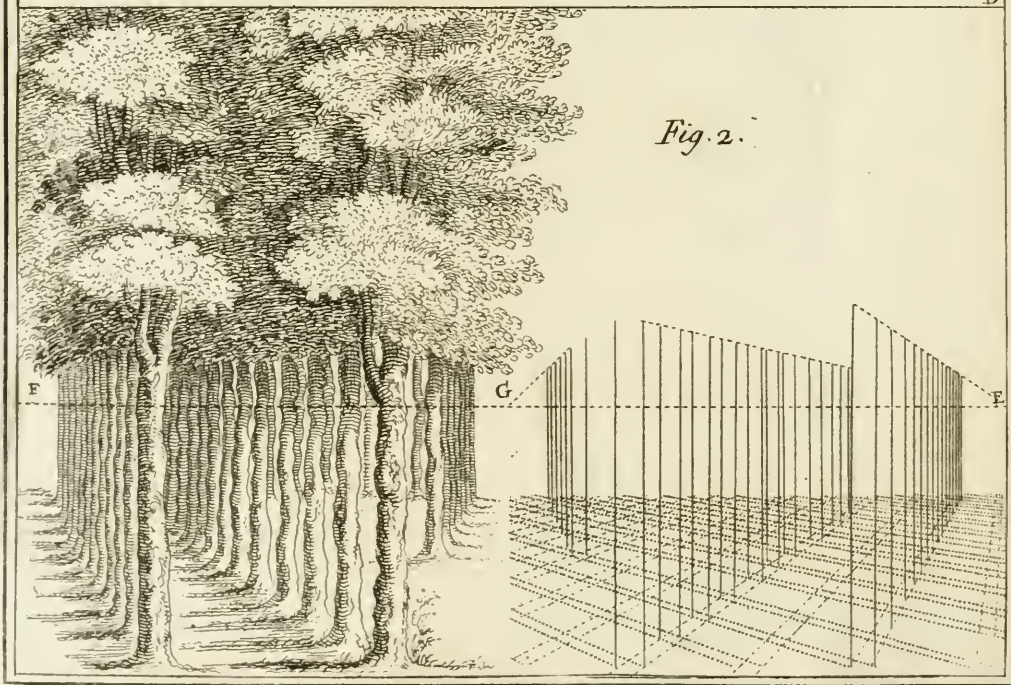


Fig. 2.

Toms sculp.

and ſolitudes; it is ſometimes joined with the firſt of the three marks that follow the next, i. e. H. S. P. made in one.

VULCAN, is repreſented, in painting, &c. ſtanding by a ſmith's forge, and hammering on an anvil on mount Ætna, making thunderbolts for Jupiter, and arrows for the god of love.

The opinions which the ancients had of Vulcan, were various; and accordingly he is variouſly repreſented, ſometimes in one manner, and ſometimes in another.

Some repreſent him lame of one leg, and in a ſcarlet robe, of a very black and ſwarthy complexion, as it were all ſmoaky; of a general ill-ſhaped proportion in all his lineaments; and, becauſe he is the huſband of Venus, ſhe is ſometimes painted with him.

W *Antony* VUORMACE, a painter of Cologne, lived in the year 1529; he engraved the twelve apoſtles in a ſtanding poſture, and uſed this mark.

W.

To make ſealing WAFERS. Take very fine flour, mix it with glair of eggs, iſing-glaſs, and a little yeaſt; mingle the materials, beat them well together, ſpread the batter, being made thin with gum water, on even tin plates, and dry them in a ſtove, then cut them out for uſe.

You may make them of what colours you pleaſe, by tinging the paſte with braſil or vermilion for red; indigo or verditer, &c. for blue; ſaffron, turmeric, or gamboge, &c. for yellow.

To put WALKS *with rows of trees in perſpective.* If only a ſingle row of trees on each ſide be required, there is no need for making a plan of ſquares or chequers.

But, where a number of Walks are to be ſhewn, we think it adviſable to form a plan in occult lines with trees, and, from the diagonals of the little ſquares formed thereby, to erect perpendiculars, as is ſhewn in A. B. plate XXIII. fig. 1.

If you deſire to have the trees further or leſs apart, increaſe or diminiſh their diſtances of the ſquares on the baſe line; when you have given the ſtem of the firſt tree its proper height, as A C, draw a line from G to the point of ſight D, which ray C D is to bound the ſtems of all the other trees.

The firſt tree A C ſhews that you may give them what turn or form you pleaſe between the two right lines; and that they are not to be drawn with the ſtraightneſs of a ruler.

The ſecond figure is performed as that above; all the difference is, that the ſquares of the upper are direct or in front; and thoſe of the under viewed angle-wiſe: Whence the meaſures on

the baſe line in the latter caſe muſt be all drawn to the points of diſtance E and F perpendiculars to be raiſed from the little ſquares, and the reſt as above.

In the ſame perſpective where Walks are drawn to the points of diſtance, one may add others drawn from the points of ſight. Thus the middle Walks tend to the point G, which is the point of ſight; and the others to the points E, F, which are thoſe of diſtance.

To make a WALNUT *grain on wood.* Spread on it thin ſeven or eight lays of ſtrong glue one after another, each being firſt dried, and it will become ſhining; then wet a bruſh or pencil in common water, and form the knots or other ſtrokes in the glue whilſt warm, and ſo ſtrike hard on it with a wooden bruſh, and lay another laying of glue and poliſh it.

To make wood of the colour of WALNUT *tree.* Dry the peels of Walnuts in the ſun, boil them in nut oil, and rub the wood over with it.

WARLIKE *ſtratagems*, are repreſented, in painting, &c. by a man in armour; a rapier by his ſide, a ſhield on his left arm, and a frog engraven on it, with a piece of reed againſt his jaws, over-againſt a ſerpent going to devour him, on one ſide a leopard; over his helmet a dolphin.—Armed, becauſe he ought to be upon his guard. The dolphin was the badge of Ulyſſes, the author of ſtratagems; he bore it in memory of a dolphin's having ſaved his ſon. The frog denotes prudence, by holding a reed croſs its mouth; for, knowing herſelf inferior in ſtrength, the hydra cannot ſwallow her, having the reed croſs-ways.

WASHING *of colours.* See COLOURS.

To make WASH *balls.* Take a pound of white cake ſoap, ſcrape it, and pound it well in a mortar; take out the crumbles that are not well incorporated, and put in a pound of ſtarch well powdered, and an ounce of the eſſence of orange, half a pint of macanet water prepared; ſtir them gently with a peſtle, then pound them till they are all well mixed, make the paſte up into balls, and let them dry.

WASH *balls of neroli.* Take four pounds of cake ſoap well cleanſed, ſcrape it and put to it as much of roſe or orange-flower water as will temper it, ſtirring it twice a day, that it may ſoak the better; then pound it well and put in half a pound of labdanum in powder, and an ounce of neroli; mix them into a paſte and ſo make them up into balls.

WASH *balls of Bologna.* Take three bundles or boxes of theſe balls, pound them and dip them in as much angel water as will wet them, then add half a pint of benjamin water, and of the paſte make two equal cakes by pounding them well; then beat two drachms of muſk or civet very ſmall, and two ounces of

balm

balm of Peru dropped in by degrees; add to theſe the groſs eſſence of amber, and ſome eſſence of cloves and cinnamon; mix theſe with the paſte, make it into balls, and keep it for a very curious perfume.

In this nature other Waſh balls or paſte may be made, and perfumed with various ſcents.

WASHING, in painting, is when a deſign drawn with a pen or crayon has ſome one colour laid over it with a pencil, as Indian ink, biſtre, or the like, to make it appear the more natural, by adding the ſhadows of prominences, apertures, &c. and by imitating the particular matters whereof the thing is ſuppoſed to conſiſt.

Thus they waſh with a pale red, to imitate brick and tiles; with a pale Indian blue, to imitate water and ſlate; with green, for trees and meadows; with ſaffron or French berries, for gold and braſs; and with ſeveral colours for marbles.

Theſe waſhes are uſually given in equal teints or degrees throughout, which are afterwards brought down and ſoftened over the lights with a fair water, and ſtrengthened with deeper colours for the ſhadows.

WASHINGS or WASHES, with goldſmiths, &c. are the lotions, whereby they draw the particles of gold and ſilver out of the aſhes, earths, ſweepings, &c.

This is either performed by ſimple waſhing them again, or by putting them into the waſhing mill.

To make one of theſe Waſhes, they not only gather together the aſhes of the furnaces, and the ſweepings of the places where the works are; but they alſo break and pound the old earthen crucibles, and the very bricks whereof the furnaces are built; little particles of gold, &c. being found to ſtick to them, by the crackling natural to thoſe metals, when in their laſt degree of heat.

Theſe matters, being all well ground and mixed together, are put into large wooden bowls, where they are waſhed ſeveral times and in ſeveral waters, which run off by inclination into ſeveral troughs underneath, carrying with them the earth and the inſenſible particles of the metals, and only leaving behind them the larger and more conſiderable ones, which are viſible to the eye, and taken out with the hand, without more trouble.

To get out the finer parts, which are gone out with the earth, they uſe quickſilver and a waſhing mill.

This mill conſiſts of a large wooden trough, at the bottom of which are two metalline parts, ſerving as mill-ſtones; the lower being convex, and the upper, which is in the form of a croſs, concave.

At the top is a winch placed horizontally, which turns the

upper piece round; and at the bottom a bung to let out the water and earth, when ſufficiently ground.

To have a waſh then, the trough is filled with common water, into which they caſt thirty or forty pounds of quickſilver, and two or three gallons of matter remaining of the firſt lotion.

Then turning the winch, they give motion to the upper part of the mill, which grinding the matter and the quickſilver violently together, the particles of the gold and ſilver become the more eaſily amalgamated therewith: This work they continue for four hours; when, opening the bung, the water and earths run out, and a freſh quantity is put in.

The earths are uſually paſſed thus through the mill three times, and the ſame quantity of mercury uſually ſerves all the three times. When there is nothing left in the mill but the mercury united with the gold and ſilver which it has amalgamated, they take it out, and, waſhing it in divers waters, they put it into a ticking bag, and put it in a preſs to ſqueeſe out the water, and the looſe quickſilver; the remaining quickſilver they evaporate by fire in a retort, &c.

Of WASHING *maps, pictures, &c.* By Waſhing is meant the illuminating maps or pictures with proper colours.

The inſtruments and materials uſed in Waſhing are chiefly theſe few following: 1. Alum water. 2. Size or gum water. 3. Liquid gold or ſilver. 4. Pencils. 5. Colours. See each under its proper article.

Of the practice of WASHING. 1. Wet your pictures that you are to colour over, with alum water, for that will prevent the colours from ſinking in, and will alſo add a luſtre to them; and not only make them appear fairer, but alſo keep them from fading.

2. Let the paper, thus waſhed with alum water, dry of itſelf, before you lay the colours on, or before you wet it a ſecond or third time: For ſome paper will require wetting four or five times.

3. This Waſhing of the paper with the alum water is to be done with a large pencil-bruſh.

4. But, if the pictures are deſigned to be varniſhed after they have been coloured, inſtead of the alum water, it will be beſt to ſize them with new ſize, made of good white ſtarch; do this with a very fine bruſh, and you muſt be very exact in doing it all over, for, if there be any place left undone, the varniſh will ſink through.

5. The pictures, &c. being thus prepared, you may proceed to the laying on the colours, according to direction, ſuiting them to the life of every thing, as nearly as you poſſibly can.

6. Having painted the picture, you may ſize it over as is before directed.

directed. Paſte maps or pictures upon cloth thus; wet the ſheet of cloth in the ſize, wring it out and ſtrain it upon a frame, or nail it to a wall, and ſo paſte the maps or pictures upon it.

7. If you intend to varniſh your pictures, &c. having thus fixed it in a proper frame, varniſh it with a proper varniſh. See VARNISH.

As for tempering the colours, do as follows: 1. As for ſuch colours as are ground in fair water, put a little of them into a horſe muſcle-ſhell, with ſome gum water, and bruiſe it with your finger againſt the ſhell, to ſoften and temper it, till you find no knobs undiſſolved, and then ſtroke down the colour to the bottom of the ſhell from the ſides, with a ſmall bruſh, and then it will be fit for uſe; and, if it be too thick, you may add more gum water to it.

2. As for thoſe colours that are waſhed, they are to be tempered after the ſame manner as the former.

3. Such as are ſteeped, the liquor only of them is to be uſed, without any other preparation.

How to lay on the colours. Provide yourſelf with pencils of ſeveral ſizes, have by you a cup or gallipot of fair water to waſh your pencils, and a clean cloth to wipe them, if you take them out of one colour to put into another.

In chuſing pencils, take ſuch as are fulleſt next the quill, leſſening gradually to a ſharp point, which you ſhould try by wetting them in your mouth, and drawing them once or twice through your lips. If you perceive in your pencils any ſtraggling looſe hairs, ſinge them off with a candle.

If you would lay any colour about the edges of your map, &c. or plan of a ſurveying of any field, or piece of ground, with yellow:

Take a little yellow in your pencil, and draw the colour along of an equal breadth, on the inſide of the black lead line.

WATCHFULNESS, is repreſented, in painting, in a yellow robe, a ſable mantle fringed with ſilver, and ſeeded with waking eyes; and a chaplet of turnſole; holding in her right hand a lamp, and in her left a bell.

To limn WATERS. Do Water at a diſtance with white and indigo, ſhaded with indigo mixed with bice, and heightened with white; if near the horizon, much like the ſky.

Waters that are near are to be laid with ſtronger indigo, heightened and ſhadowed with the ſame, mixed with bice, and laſtly heightened with pure white.

Waters nearer with ſtronger indigo, ſhaded and heightened as before.

Waters and fields overflown, with pink and the like, always imitating nature.

WATERING *ſtuffs*. Take a ſufficient quantity of water, and gum tragacanth an ounce; diſſolve it in the water, making a clear thin water; then wet ten yards of ſtuff with the ſame water hot, all over, and put it into a preſs; let it lie a pretty while, and turn it twice; after this, ſqueeſe the preſs pretty hard, and ſo let it ſtand till it is cold.

This gum water ought to be pure, thin, and clear, otherwiſe the folds of the ſtuff will ſtick together; it muſt alſo be done very hot, elſe it will not penetrate; and the ſtuff, &c. is to be thoroughly wet therewith, yet not too wet.

Of chuſing WATER *to dye with*. It is common to uſe running, or river water, either of great rivers or rivulets, for the leſs valuable ſtuffs and dyes.

But it is very well worthy of obſervation, what difference there is of rivers; ſome being very clear and bright, others very thick and muddy; thoſe that are clear, are the beſt; but if the laſt are drawn out, and let ſtand to ſettle for twenty-four hours, they are good, though not ſo good as the other.

In the next place it ought to be conſidered, whether the water be hard and rough, or ſmooth and ſoft; and the proof to diſtinguiſh their quality is very eaſily made in the boiling of vegetables; particularly peaſe, or lentils; by ſetting them over the fire, one part in running, or river water, and one part in ſpring water; and boiling them for an hour, or an hour and an half; and that pot where the peaſe are ſofteſt, without doubt, had the ſofteſt water.

But, above all, nitrous waters are to be avoided; and, if one is conſtrained to uſe them, it will be very proper to correct them as follows.

To ſoften hard or harſh WATER. If a Water is nitrous, or ſomething akin to the nature of lime, it is utterly unfit for dying; but, if a perſon is conſtrained to uſe it, the following proceſs will rid it of all its ill qualities:

Fill a large copper with the Water, and put into it two or three handfuls of wheaten bran; then having heated a brick, or piece of plaiſter very hot, throw it into the copper, cover it very cloſe, and let it ſtand twenty-four hours, and then draw it off, and it will be perfectly fit for uſe.

Or throw always a handful of wheaten bran into the firſt ſuds, and let it boil, and you will find that it has corrected the water, and will render the ſtuffs more limber.

WATER, with jewellers, is properly the colour or luſtre of diamonds and pearls; thus called, by reaſon theſe were anciently ſuppoſed to be formed or concreted of Water.

WAX, is a ſoft, yellowiſh matter, whereof the bees form their cells to receive their honey.

Naturaliſts have generally imagined, that Wax is gathered from the flower, ſome from the petala, and others from the apices; but Boerhaave affirms, that it is a juice peculiar to the leaves, and not afforded by the flowers, which only yield honey.

The Wax is a hard ſubſtance, and gathered only with the fore legs and chaps; conveyed thence to the middle legs, and thence to the middle joint of the hind legs, where there is a ſmall cavity, like the bowl of a ſpoon, to receive it, and where it is collected into heaps, of the ſhape and ſize of lentils.

When the bee is arrived at his hive with his load of Wax, it finds ſome difficulty in unburthening himſelf of ſo tenacious a matter; and, frequently being unable to lay it down himſelf, he calls for aſſiſtance by a particular motion of his legs and wings; whereupon a number of his companions immediately run to his help, and each with his jaws taking off a ſmall quantity of the Wax, others ſucceeding in their place, till they have quite diſburthened their loaded fellow.

There are two kinds of Wax, white and yellow; the yellow is the native Wax, juſt as it comes out of the hive, after it has been diſcharged of the honey, &c. and the white is the ſame Wax, only purified, waſhed, and expoſed to the air.

The preparation of yellow WAX. To procure the Wax from the combs for uſe, after the honey has been ſeparated from it, all the matter that remains is put into a large kettle, with a ſufficient quantity of water; and, being melted by a moderate fire, it is ſtrained through a linen cloth in a preſs; and, before it is cold, it is ſcummed with a tile, or piece of wet wood; and, while it is yet warm, caſt in wooden, earthen or metalline moulds, they having been firſt anointed with honey, oil, or water, to prevent the Wax from ſticking to them.

Some in purifying it make uſe of Roman vitriol, or copperas; but the true ſecret is to melt, ſcum it, &c. properly without any ingredients at all.

The fæces, or dregs remaining in the bag, after the bag has been preſſed out, are uſed by ſurgeons, farriers, &c.

The whitening of WAX. This whitening, or blanching of Wax, is performed by reducing the yellow ſort firſt into little bits or grains, which is done by melting it, and caſting it, while hot, into cold water; or elſe by ſpreading it into very thin leaves or ſkins.

This Wax, having been thus granulated or flatted, is expoſed to the air on linen cloths; where it lies night and day, having equally need of ſun and dew.

Then it is melted and granulated over again ſeveral times, laying it out to the air in the intervals between the meltings.

At length, the ſun and dew having perfectly blanched it, it is melted

melted for the laſt time in a large kettle; and laded out of the kettle with a ladle, upon a table covered over with little round dents or cavities, of the form of the cakes of white Wax, uſually ſold in apothecaries ſhops; thoſe moulds having been firſt wetted with cold water, that the Wax may be got off the eaſier.

Laſtly, they lay theſe cakes out into the air for two days and two nights, to render it the more tranſparent and drier.

This Wax is uſed in making candles, tapers, flambeaux, torches, and for various other purpoſes.

Red WAX, is only the white melted with turpentine, and made red with vermilion, or orcanette.

Burnt paper, or lamp black, makes it black, and verdigreaſe makes it green.

Virgin WAX, called alſo propolis, is a ſort of reddiſh Wax uſed by the bees to ſtop up the clefts or holes of their hives. It is applied, juſt as it is taken out of the hive, without any art or preparation of boiling, &c. it is the moſt tenacious of any, and is held good for the nerves.

Sealing WAX, } is a compoſition of gum lacca, melted and
Spaniſh WAX, } prepared with roſin and chalk, and coloured red with ground cinnabar.

Red Sealing WAX. Take one pound of bees Wax, three ounces of fine turpentine, one ounce and an half of red lead or vermilion finely ground, olive oil an ounce; melt the Wax and turpentine, and one ounce of roſin finely powdered; when they are well melted, and the droſs taken off, put in the red lead or vermilion, and ſtir them well together till they are well incorporated; and you may, when it grows a little cool, make it up into what form you pleaſe.

To make an ordinary red ſoft ſealing WAX. Take common bees Wax two pounds, turpentine ſix ounces, oil of olive two ounces; melt all theſe together, then add ſix ounces of red lead; boil them a little, and ſtir it till it is almoſt cold; caſt it into fair water, and make it up into rolls or cakes.

To make fine red hard ſealing WAX. Take pure fine ſhell lac, melt it in an earthen veſſel, and put into it a ſufficient quantity of the colour you deſign the Wax to be of; if red, to every half pound of gum lac put an ounce and an half, or two ounces, of purely fine ground vermilion; mix them well over the fire, and, when it is of a fit coolneſs, make it up into rolls or cakes.

You may ſet a gloſs upon it, by gently heating it over a naked charcoal fire, and rubbing it with a cloth till it is cold.

To make the beſt red ſoft WAX. Take white Wax two pounds, Chio turpentine ſix ounces, oil of olive ſix ounces; mix and melt them together; then add pure vermilion well ground two ounces,

mix

mix and boil them a little, ſtir them till almoſt cold, caſt it into cold water, and then make it up into rolls or cakes.

To make black ſoft WAX. Take bees wax one pound, turpentine three ounces, oil olive one ounce, mix and melt them together; to which add lamp black, or ivory black finely ground, one ounce; mix and melt, &c. as before.

To make coarſe hard ſealing WAX. Take ſhell lac ſix ounces, roſin ſix ounces, fine vermilion three ounces; melt and mix them together, and, when in a due ſtate as to heat and cold, make them up into ſticks or rolls, which you may ſet a gloſs upon as before directed.

Green ſealing WAX, is made after the ſame manner and in the ſame proportions as fine hard red ſealing Wax, by mixing with the ingredients verdigreaſe inſtead of vermilion.

Blue ſealing WAX, is alſo made after the ſame manner, by putting in fine blue ſmalt or ultramarine.

Purple ſealing WAX, is made by putting in vermilion mixed with ivory black, or lamp black.

Black, hard, coarſe ſealing WAX, is made with ivory black.

Yellow ſealing WAX, is done as the reſt, with finely ground auripigmentum, or yellow maſticote.

Green ſoft WAX. Take bees Wax one pound, turpentine three ounces, oil olive one ounce; mix and melt them, then add fine verdigreaſe one ounce; mix, and make the Wax up, as the others.

Yellow ſoft WAX. Take yellow bees Wax one pound, turpentine three ounces, oil olive one ounce; mix and melt them, then add gamboge in fine powder two ounces, auripigmentum finely ground one ounce; mix, and make the Wax, as before.

To make perfumed ſoft WAX. This is done by mixing with ten ounces of any of the former compoſitions oil of rhodium a drachm, muſk in powder a ſcruple, civet half a ſcruple, mixing them well.

After the ſame manner you may make ſoft Wax of all colours, having what ſcent you pleaſe, by mixing the perfume you would have either with the oil of olive beforehand, or elſe by working it into the compoſition of the Wax after it is made.

To make golden or tranſparent WAX. Take four ounces of clarified roſin, two ounces of turpentine, four ounces of bees Wax, and two ounces of olive oil; melt them well together, and ſcatter in the melting diſordered or ſhattered leaf gold, and ſuffer it to mix or incorporate; then poliſh it over when made into ſticks, &c. and the gold will appear.

WEEPING, in drawing, is imitated in the following manner: A perſon Weeping, has his eye-brows hanging down in the middle of his forehead; the eyes almoſt cloſed, very wet, and

and caſt down towards the cheeks; the noſtrils ſwelled up, and all the muſcles and veins of the forehead apparent.

The mouth is half open, the corners hanging down, and making wrinkles in the cheeks; the under lip appears turned down and pouting out; the whole face appears drawn together and wrinkled; the colour very red, eſpecially about the eye-brows, eyes, noſe, and cheeks. See plate XXI.

WEST, is repreſented, in painting, &c. by an old man in a ruſſet garment, with a red girdle, in which are Gemini, Libra, and Aquarius. He is muzzled; a ſtar on the crown of his head; his right arm extended towards the earth, with his little finger he ſhews the Weſt part, where the ſun ſets; with his left he holds a bundle of poppies. The air duſkiſh, and bats flying.—His garment denotes the ſun's ſetting and almoſt deprived of light; the ſtar Heſperus, over his head, as appearing in the Weſt in the cloſe of the evening; the poppy, ſleep, being a ſoporiferous plant.

WHITE, is one of the colours of natural bodies; but it is not ſo properly ſaid to be of any colour, as a compoſition of all colours. See COLOURS.

WHITES *for painting in miniature.* The beſt White that is pretended to be ſold for painting in water colours, is flake White, which is better than White lead ground; and, if it be pure, far exceeds it in beauty, becauſe White lead is apt to turn blackiſh, eſpecially if it be uſed in a hard water.

But ſome recommend a White made of pearl or the whiter parts of oiſter-ſhells, reduced into an impalpable powder ſo ſoft, as to feel like grounds of ſtarch or hair powder; this is by ſome called pearl White, but it is not commonly ſold. This White will mix well with any colour.

But, if you uſe White lead, firſt rectify it with White wine vinegar; this will cauſe a fermentation, and the White will ſoon ſettle; then pour off the vinegar, and waſh it with common water. The method of waſhing it is this:

Put the powder into a glaſs of water, ſtir it about, and preſently pour off the water, while it is White, into ſome other clean glaſs or veſſel; let it ſettle, and then pour off the water from it, and it will be excellently fine.

When this White is ſettled, put to it as much gum water as is neceſſary to bind it or to give it a glaze.

It is obſervable, that White lead will turn black, if mixed with water that comes from iron or clay; that is, in the ſpace of a month or two, you may perceive thoſe places where it lies thickeſt tinged with black, and, if it be mixed with any other colour, it will ſoon change or alter it.

Some recommend the powder of egg-ſhells of the brighteſt colour and well cleaned and waſhed, as very good to be ground with

with gum water; or you may put about a twentieth part of clear white ſugar-candy to grind with it in water; grind it as fine as poſſible, that is, to the ſtate of what is called an impalpable powder, and then uſe it.

But it has been found by experience, that egg-ſhell powder is of very great ſervice as a White in water colours, and that itſelf and the powder of oiſter-ſhells, well rectified and mixed with the White of an egg well beaten, will make an extraordinary mixture in other colours, and will correct them from changing or altering their qualities.

But, as for White for illuminating of prints, the clear White of the paper is proper to be left uncoloured; and if it happens that the paper is apt to ſink, or to ſpread any water colour that is laid upon it more than is neceſſary, then the way to correct it is as follows:

Fix the paper in ſuch a ſtation as may only receive the colour you lay on to glaze, juſt as far as you deſigned it; then take ſome ſtarch boiled and prepared in water of a middle ſtrength, and with a large painting bruſh ſtroke it over the back of the print; and, after it has been well dried in the air or ſun, put the print in a book with a weight upon it, to take out the crumplings, which it may receive by wetting of it; and ſo will any print be rendered fit to receive water colours, and prevented from running farther than we would have them.

There is a ſort of earth that comes from China, that is of a very ſoft nature, and very White; which does better in water colours than any of the reſt, but it is very ſcarce.

A fine WHITE *for water colours.* Diſſolve filings of fine ſilver, or leaf-ſilver, in aqua-fortis or ſpirit of nitre; then evaporate the aqua-fortis till it looks like cryſtals in the bottom of the glaſs; decant the other part of the aqua-fortis, and waſh the ſilver five or ſix times in common water, till it be freed from the aqua-fortis, which may be known by taſting it; then dry it for uſe. It muſt be uſed with gum water, with a little water of ſugar-candy.

An incomparable fine WHITE *lead.* Take choice White lead, grind it well upon a porphyry with vinegar, and it will turn blackiſh; then take a pot full of water, and waſh the White lead in it very well; let it ſettle, and pour off the water; grind it again with vinegar; repeat this once or twice, and you will have an excellent White, both for water colours and painting in oil.

To WHITEN *green or grey flax.* Firſt make a ley of good aſhes and unſlaked lime, and ſteep the flax in it for twenty-four hours; and afterwards add ſome ſal armoniac put into the middle of ſome unſlaked lime, and a few warm aſhes; pour off the water, and make a ſharp ley, and boil the flax in this ley for an hour or two, and you will find it become very white and bright, and that

that the ſal armoniac is fixed. When the flax has been ſteeped in the ley, boiled, and well dried, then it muſt be rinſed very well in running or river water, and blued and wrung out with the hands. See BLEACHING.

To diſcover WHITE *upon black with an iron pencil.* Having well covered your frame or other piece of work with a White ground, well varniſhed, poliſhed, and ruſhed; take lamp black, and, having ground it with yolk of egg, make trial of it apart, to ſee whether the black, when fixed, will burniſh very bright. You muſt ſize your black as much as it is neceſſary to make it ſtick.

Colour your frame, &c. with this black, lay it on well, dry it, and burniſh it with a touch; then take an awl or bodkin of iron, ſharpened and flatted at the end like a chiſſel, of ſuch breadth you would have your fillet to be; and, with a ruler and this iron thus ſharpened, draw fillets, ſcraping off the black, till you come to the White.

You may alſo, if you pleaſe, with a bodkin make moreſk works, which you may hatch into every leaf; as alſo other branched works, the imboſſment of which you may make by ſcraping off the back with an iron bodkin, till you can ſee the White, ſtill keeping your iron tool ſharp and ſmooth.

By this means your work will be of a fine black, well burniſhed or poliſhed like marble, in which you will have branched works that will ſeem like ivory inlaid in wood.

If your figures appear too much ſhadowed, after you have drawn out all your work with a bodkin, take one or more irons like a folding ſtick or rather blunter, as you ſhall ſee convenient; let it be well ſmoothed and hardened, and with it rub the figures as evenly as is poſſible, till no black appears any longer; but not ſuffering the iron to enter any farther than the ſuperficies of the White; that is, when the black ſhall be rubbed off, and the figure ſhall appear very White and ſmooth; and afterwards with a tooth bruſh and White you have laid bare; and laſtly, with a ſmall pencil, you ſhall draw the lines and hatch the ſhades, as if it were horn engraved or carved.

How to make upon an open WHITE *ground fillets and branched work.* Firſt lay your frame or other work with boiling ſize, as is directed for laying upon White to gild with burniſhed gold; and, having ſized it, take lamp black well ground with water, then ſize it as the White, and go over your work with it five or ſix times, and afterwards ruſh it; then grind ſome of the ſame White, and grind it with as much yolk of egg as may make the White poliſh, and go over the work once or twice with this; and when it is dry burniſh the White with a tooth, then with your

your iron draw upon the White fillets branched works or portraits, according to your fancy, till the black appears.

The friezes of your frame will ſeem to be of ivory, and the black will ſeem to be engraved, or pieces of ebony inlaid in ivory.

But, to make it the better to reſemble ivory, you ſhould have by you a little piece of poliſhed ivory, the better to repreſent its colour, which is not ſo White as chalk, but a little inclining to yellow; and this may be imitated by grinding with your chalk a little yellow oker, or a little pale maſticote, or the bones of ſheep's trotters burnt and ground to powder.

WHITENESS, is a quality which denominates a body white. But Sir Iſaac Newton ſhews that Whiteneſs conſiſts in a mixture of all the colours; and that the light of the ſun is white, becauſe conſiſting of rays of all colours. See COLOURS.

The WILL, is repreſented, in painting, &c. by a maid purblind, having wings on her back and feet; a gown of changeable taffata, and acting like one groping out her way in the dark.—Blind, becauſe, ſeeing nothing herſelf, ſhe walks after ſenſe by groping. Her changeable robe, her wavering between hope and fear; the wings denote her reſtleſs condition; having found no reſt on earth, ſhe makes a generous effort towards heaven, by the wings on her feet.

Spirit of WINE, is of very great uſe in varniſhing; but, if it be not properly prepared, it will ſpoil the varniſh; not being capable, for want of ſtrength, to diſſolve the gums, or make them ſpread; and ſo of conſequence lie uneven upon the work.

To know when this ſpirit is ſufficiently rectified: Put ſome of it into a ſpoon, and put a little gun-powder into it, and if it burns out, blows up the gun-powder, and leaves the ſpoon dry, then it is a good ſpirit; but if it fails of doing this, and leaves the ſpoon moiſt when the flame goes out, it is not fit for uſe.

WIRE, a piece of metal drawn through the hole of an iron into a thread of a fineneſs anſwerable to the hole it paſſed through.

Wires are frequently drawn ſo fine, as to be wrought along with other threads of ſilk, wool, flax, &c.

The metals moſt commonly drawn into Wire, are gold, ſilver, copper, and iron.

Gold and ſilver Wire, is made of cylindrical ingots of ſilver, covered over with a ſkin of gold, and thus drawn ſucceſſively through a vaſt number of holes, each ſmaller and ſmaller; till at laſt it is brought to a fineneſs, exceeding that of a hair.

That admirable ductility which makes one of the diſtinguiſhing characters of gold, is no where more conſpicuous, than in this gilt Wire.

A cylin-

A cylinder of forty-eight ounces of ſilver, covered with a coat of gold, only weighing one ounce, as Dr. Halley informs us, is uſually drawn into a Wire, two yards of which weigh no more than one grain; whence, ninety-eight yards of the Wire weigh no more than forty-nine grains, and one ſingle grain of gold covers the ninety-eight yards; ſo that the thouſandth part of a grain is above one eighth of an inch long.

He alſo, computing the thickneſs of the ſkin of gold, found it to be $\frac{1}{11500}$ part of an inch. Yet ſo perfectly does it cover the ſilver, that even a microſcope does not diſcover any appearance of the ſilver underneath.

M. Rohault likewiſe obſerves, that a like cylinder of ſilver, covered with gold two feet eight inches long, and two inches nine lines in circumference, is drawn into a Wire 307200 long, i. e. into 115200 times its former length.

Mr. Boyle relates, that eight grains of gold, covering a cylinder of ſilver, are commonly drawn into a Wire 13000 feet long.

Silver Wire is the ſame with gold Wire, except that the latter is gilt, or covered with gold; and the other is not.

There are alſo counterfeit gold and ſilver Wires; the firſt made of a cylinder of copper, ſilvered over, and then covered with gold; and the ſecond of a like cylinder of copper, ſilvered over, and drawn through the iron, after the ſame manner as gold and ſilver Wire.

Braſs Wire is drawn after the ſame manner as the former. Of this there are divers ſizes, ſuited to the different kinds of works. The fineſt is uſed for the ſtrings of muſical inſtruments, as ſpinnets, harpſichords, manichords, &c.

The pin-makers likewiſe uſe vaſt quantities of Wire, to make their pins of.

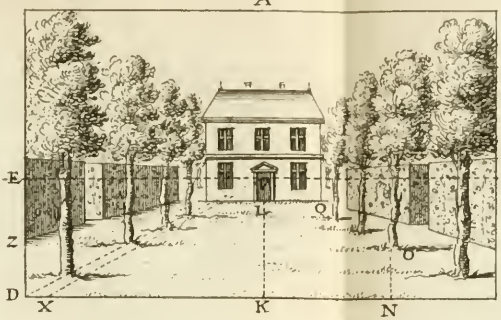
Iron Wire is drawn of various ſizes, from half an inch to one tenth of an inch diameter.

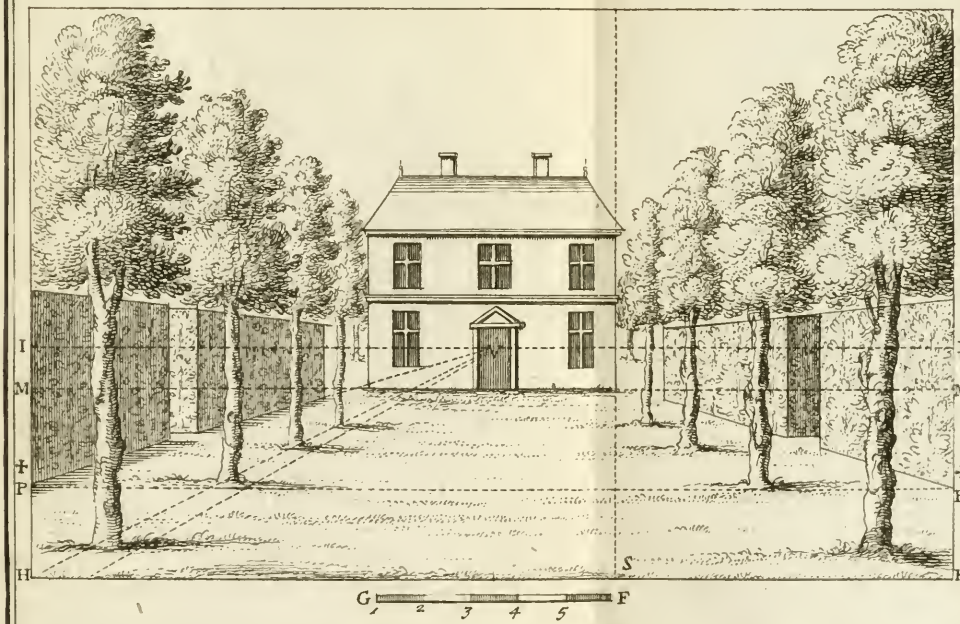
The firſt iron that runs from the ſtone when melting, being the ſofteſt and tougheſt, is preſerved to make Wire of.

WISDOM, is repreſented, in painting, cloathed in a blue mantle, ſeeded with ſtars.

Human WISDOM, is repreſented, in painting, by a youth with four hands and four ears, a quiver by his ſide, a recorder in his right hand, and a lyre in the other; ſacred to Apollo.—The hands denote uſe and practice, neceſſary to get Wiſdom, beſides contemplation; the ears, that to hear others is requiſite; the flute and quiver, that one ſhould not be too much taken with encomiums of one's ſelf, nor unprovided in caſe of offence.

William WISSING, was a face painter, bred up under Dodaens, a hiſtory painter at the Hague; upon his coming over to England, he worked ſome time for Sir Peter Lely, whoſe manner





Toms sculp.

ner he ſucceſsfully imitated, and, after whoſe death, he became famous. He painted king Charles II. and his queen, king James II. and his queen, the prince and princeſs of Denmark, and was ſent over to Holland by the late king James, to draw the prince and princeſs of Orange; all which he performed with applauſe. What recommended him to the eſteem of king Charles, was his picture of the duke of Monmouth, whom he drew ſeveral times, and in ſeveral poſtures; he drew alſo moſt of the court, and was competitor with Sir Godfrey Kneller, who was at that time upon his riſe. In drawing his portraits, eſpecially thoſe of the fair ſex, he always took the beautiful likeneſs; and when any lady came to ſit to him, whoſe complexion was any ways pale, he would commonly take her by the hand and dance her about the room till ſhe became warmer, by which means he heightened her natural beauty, and made her fit to be repreſented by his hand. He died much lamented, at the age of thirty-one, at Burleigh-houſe in Northamptonſhire, and lies buried in Stamford church.

WIT, is repreſented, in painting, in a diſcoloured mantle.

To inlay WOOD *with figures.* To do this with mother of pearl, break the ſhells, and cut them according to the forms of the figures you deſign; and, after you have cut the Wood with gouges, put them in.

Thus you may imitate all ſorts of fruits; for you will find ſome green, ſome yellow, ſome blue, ſome purple; ſo that, if you would imitate a black grape, the leaf of a tree, or other fruit, you have a ſuitable colour.

Make a ſmall hole through every piece, pinning it with a ſmall piece of ſilver wire, to make it ſtick faſt; then take linſeed oil and orcanet; rub it well, and wipe off the oil clean; when it is dry, varniſh it with the drying varniſh.

You may make very fine compartment work, in fine threads that will look like ſilver, thus; make a ſet of ſmall gouges of all ſorts, very ſharp; and with theſe cut your deſign.

Then melt tin, adding to it the ſame quantity of quickſilver; ſtir it with a ſtick; being cold, put it in the palm of your hand; if it be too ſoft, add a little more tin; grind this compoſition with water upon a marble; put the compoſition into a ſhell, and with it fill up the engravings and cuttings which you have made with your gouges; then let your work ſtand two or three hours to dry, and then poliſh it with your hand, and it will look like ſilver.

By adding more quickſilver, you may make a thinner compoſition, which you may rub into the indentures you have cut, till it be as bright as ſilver; or, inſtead of tin, you may mix leaf

ſilver with the quickſilver, which will add to the beauty of the work.

This is commonly practiſed upon black and coloured Wood, poliſhing them with a tooth.

If you would have the compoſition more beautiful, grind tin glaſs and waſh it till it leaves the water clear; then mix it in a ſhell with ſome gum, and fill up the engravings with it, with a pencil; then let it lie for three or four hours to dry, and quicken it with the compoſition of mercury and leaf ſilver.

To ſtain WOOD *red.* Take half a pound of fernambouc, or what other you think fit; rain water, a handful of quick lime, and two handfuls of aſhes; let them ſteep for half an hour in the water, and ſettle to the bottom; then take a new earthen pot, and put in the fernambouc, with the ley made of lime and aſhes; and, having ſteeped half an hour, boil it. Then let it cool a little, and pour it into another new pot, adding to it half an ounce of gum arabic; then put ſome rain water and a piece of alum into another pot or pan; boil it, ſoak the Wood in this alumed water, then take it out and dry it; then warm your red colour, and with a bruſh rub it as long as you think neceſſary; then dry it and poliſh it with a dog's tooth, and it will be of a ſhining ſcarlet colour.

To ſtain WOOD *of a yellow colour.* This may be done either with French berries and alum, or with turmeric or ſaffron, or merita earth.

A poliſhed black for WOOD. Cover the Wood with lamp black, ground with gum water, with a pencil; and when it is dry poliſh it with a tooth, and it will look very well.

Another black dye for WOOD. Put little pieces of very ruſty iron into good black ink, and let it ſtand for ſome days; afterwards rub the wood with it, and it will penetrate it; then poliſh it with a tooth, and it will look very beautiful.

To counterfeit ebony WOOD. The moſt ſolid Wood, and freeſt from veins, is beſt; ſuch as pear-tree, apple-tree, and ſervice-tree; take any of theſe Woods, and black it well, and when it is dry rub it with a cloth; then, having made a little bruſh with ruſhes, tied near the ends, melt ſome wax in a pot, mixing ſome lamp black with it; then with the bruſh throw on ſome of the wax, bruſhing it till it ſhine like ebony; then rub it with a cloth, and ſome of the wax.

The Wood ſhould be well poliſhed and rubbed, before it is blacked.

Holley is the beſt of Woods for counterfeiting of ebony. This is to be put into a hat-maker's copper, where he dyes his hats; and when it has been tinged to the thickneſs of a ſix-pence, which you may know by cutting it, take it out and dry it in the ſhade, that

that it may the better imbibe the dye water; then poliſh it with an iron, to take off the foulneſs of the dye; and afterwards, with ruſh, powder of charcoal, and ſallet oil; as is done to ebony.

The Wood of Tunis poliſhes eaſily; it alſo burniſhes well with a tooth, and is better to cut than ebony, which is very brittle.

An excellent blue colour for WOOD. Boil a quarter of a pound of turnſole for an hour, in three pints of lime water, and colour the Wood with it.

A violet colour for WOOD. Temper Dutch turnſole with water, and ſtrain it through a cloth; before it is uſed on your work, try it on a piece of white Wood, to ſee if it be not too deep. When you have laid on the colour, put ſome of the ſame colour to a quantity of water, to render it very thin; and waſh the Wood with this, till it become bright; then dry it, burniſh, and varniſh it; and, if the Wood be white before, it will then be of an excellent blue.

Another violet. Boil four ounces of braſil and eight ounces of logwood together, in two quarts of water, with an ounce of common alum; and in theſe boil the Wood.

A purple colour for WOOD. Steep turnſole as is directed for the violet colour, and add to it the tincture of braſil boiled in lime water, and it will be an excellent purple; this ought to be varniſhed, both to beautify, and to preſerve it.

A way of ſtaining, or marbling WOOD. Grind white lead and chalk together on a marble; put it into a pot, and temper it again with the yolk of an egg, beaten with water; then lay on this white with a large pencil; let it dry, and go over it again with the ſame; let it dry again, and then take a point made of a ſtag's horn; draw off the white, where and in what form you will; then ſprinkle the lime mixed with urine. The violet Wood which dyers uſe, will become black as ebony; by ſprinkling it with lime and urine, plum-tree, and cherry-tree, turn of a deep red; the pear-tree and ſervice-tree turn reddiſh; walnut-tree grows black, by mingling ſome galls in powder with lime and urine.

A pencil made of mutton ſuet, rubbed where you would draw with yolks of eggs, will do the ſame thing.

It will be excellent upon black cherry-tree, plum-tree, or any Wood of a dark colour.

To make WOOD *of a ſilver colour.* Reduce tin glaſs in a mortar to fine powder; add to it water, and grind it to the fineneſs of paint; put it into an earthen pan, and waſh it two or three times till it is very clean; and then mix clear glue with it, and, having firſt warmed the Wood, lay the mixture on it with a bruſh; let it dry, and poliſh it with a tooth.

To make WOOD *of the colour of gold, silver, copper, or brass,* Pound rock cryſtal very fine in a mortar, then grind it on a marble with clean water; then put it into an earthen veſſel with a little glue, warm it and lay it on your work, as above; rub it with gold, ſilver, or copper, and it will be of the ſame colour you rub it with; then poliſh it.

To lay pencil gold or ſilver on WOOD. Temper the gold or ſilver with weak gum tragacanth water, very clear; lay it on the lights of your works with a pencil, without touching the ſhadows, which are to be done with indigo, ground with a weak gum arabic water; then varniſh it with the drying varniſh.

To colour WOOD *after the manner of marble.* For a table, &c. firſt lay ſeven or eight layers of white, as though it were to be gilded with burniſhed gold; then having ready ground black, not over much ſized, add thereto a little yolk of egg, and a little dry ſaffron; lay it on, let it dry, and then burniſh it exactly.

By this means you may counterfeit to the life all ſorts of marble, having a little experience in colours; and make alſo all ſorts of works, as fretted work, flat work, ovals, &c.

Let there be in the colours a little yolk of egg and ſaffron; that is, in ſuch as can bear it, colouring the marble with divers colours; the colours muſt be laid on clear, like threads. You may alſo on ſuch a ground before directed pour out a ſhell of one colour in one place; then, turning it ſhelving on one ſide, cauſe the colours to run, which will make veins; and then take another ſhell, full of another colour, and do the like; ſo continuing with all your colours.

Or elſe with a groſs bruſh lay all your colours very clear, near one another.

After the colours are dry, you may make uſe of the pencil to repair the defects; then burniſh your work, which will not be ſubject to duſt or ſpoiling.

An exquiſite way of inriching and beautifying WOODEN *works.* Firſt cover your Wooden work with hot glue, then with the mixture of glue, and whiting upon this, lay the ſize for burniſhed gold, and lay on the gold and ſilver and burniſh it; then having ground right indigo with the yolk of an egg, and that being very thin and clear, lay it on the ſilver, ſo as that the ſilver may appear through it. When it is dry, pounce your paper pattern, being whitened with chalk; then with the ſame indigo draw over the pounced ſtrokes of your figure as neatly as you can, as if you were to draw a figure with a pen upon paper; then with the ſame indigo made thinner ſhadow it, and afterwards with umber; then heighten with a Wooden point, by hatching the lights; then varniſh the works, and it will ſeem to be enamelled.

Another

Another way, but more beautiful. Inſtead of indigo, ſteep Dutch turnſole for a day or two in water, then ſtrain it through a cloth from the dregs; grind and mix this water with the yolk of an egg, lay this on your ſilver, then with turnſole ground with turnſole water draw with a pencil what lines or figures you think fit, which you may ſhadow and hatch in the proper places, which heighten in diſcovering the ſilver, as before directed; then varniſh the work.

To make the ground of a purple colour Boil braſil in lime water, and mix with turnſole water. This will not laſt ſo well as that done with indigo, becauſe the turnſole in time is apt to turn red, and will ſtain the ſilver; therefore, before you varniſh, lay upon it the white of an egg beaten into glair, which will render it much more durable, and admirably beautiful.

To inrich carved work, or any ſort of WOODEN *work.* The Wooden work, whether picture frames, or other things, cover with burniſhed ſilver, as taught under the article GILDING, &c. and having made ſome vellum glue or parchment glue, boiled to a thick jelly, ſtrain it through a cloth; let it ſtand to ſettle, and then ſtrain it again; then with this glue give one laying upon your work with a ſoft bruſh; if it be not enough, give a ſecond, and then varniſh it. But before you varniſh, if you have a mind ſo to do, you may paint flowers, fruits, leaves, or birds, in water colours, and in their proper colours; and varniſh them, having firſt laid them over with glue.

Note, you may mix, with your glue, either milk, or ſoap of Alicant.

How to embelliſh a WOODEN *frame with green leaves.* Take indigo, a little orpiment ground with water, inclining towards a greeniſh brown, mixing, with about half a pint of your colour, the quantity of a muſcle-ſhell of the yolk of eggs, and as much ſize as is requiſite to make it.

Having firſt laid on your white in the ſame manner, as if you were to gild it with burniſhed gold; then paint the friezes of your frame with this brown colour, leaving the mouldings untouched, which you are before to gild with burniſhed gold.

Having thus prepared your work, you muſt either by pouncing, or other ways, draw what figures you pleaſe; then with indigo alone, ground with water, a little ſize, and a drop of the yolk of an egg, draw your figures or leaves, and ſhadow them; and in ſhadowing ſweeten, heightening them with green, viz. you muſt take orpiment, well ground with the greeniſh brown, wherewith you laid the firſt layer upon your frame; then heighten it with orpiment alone, ground with water and ſize, and a little drop of the yolk of an egg among your colours, becauſe it

would dry in burniſhing; for the yolk of an egg ſerves only to make it burniſh the eaſier.

But, if you would paint your leaves in oil, you muſt burniſh the firſt layer of greeniſh brown, and then paint your leaves with drying oil, boiled with litharge of gold; and inſtead of orpiment you may, if you pleaſe, work with maſticote.

Francis WOUTERS, was born at Lyere in the year 1614, and was brought up in the ſchool of Rubens; he was a good painter of figures in ſmall, chiefly naked, as alſo of landſcapes; his merits promoted him to be principal painter to the emperor Ferdinand II, and, afterwards coming into England with that emperor's ambaſſadors, he was upon the death of that prince made gentleman of the bed-chamber, and chief painter to king Charles II, then prince of Wales. He lived a conſiderable time in London in great eſteem, and at length retired to Antwerp, and there died.

To WRITE *with gold and ſilver.* Grind gum armoniac with a little juice of garlic, and put to it a few drops of weak water of gum arabic, and ſo make it to the thickneſs of an ink, that you may conveniently write with it; then let it dry a little, but not too much, leſt it ſhould not take the leaf gold or ſilver; nor too little, leſt it drown them. Then lay the leaf gold or ſilver upon a gilding cuſhion; take it up with a piece of cotton, on which you have breathed, and cover with it the part you intended, preſſing it down hard; and, where the gum water is, it will take. Then bruſh off with a bit of other cotton what it has not taken; and when it is thoroughly dry burniſh it with a piece of poliſhed ivory, and it will appear very bright.

Another way. Take ſhell gold, which is made of the rugged edges or cuttings of leaf gold; and when you are going to uſe it put in a little fair water, and temper it up with a clean pencil, and lay it on either with pen or pencil, in what form you pleaſe, either by way of writing or gilding, and let it be thoroughly dry; rub it over with a dog's, calf's, or horſe's fore-tooth, and it will be very ſhining and luſtrous.

Secret WRITING. Put powder of alum into water, and what you write the letters will not appear; but put the paper into water, and then you may read it; or juice of ſpurge will do.

To WRITE *letters that cannot be diſcovered.* Take a ſheet of white paper, double in the middle of it; then cut holes through both the half-ſheets, cut the holes like the panes of a glaſs window, or any other faſhion you pleaſe; then with a pin prick two little holes at each end, and cut your paper in two halves, and give one half to your friend, to whom you deſign to write, and keep the other half yourſelf.

When you Write, lay your cut paper on half a ſheet of writing

ting paper, and ſtick two pins through the two holes, that it ſtir not; then Write your mind to your friend through theſe holes; then take off the paper with the holes, and Write any thing, what you pleaſe, to fill up the vacancy. And, when your friend receives the letter, let him lay his cut paper on it, putting the pins into the holes; and then what you wrote not to the purpoſe is covered, and he diſcovers your mind.

Another way. Write the letter with common ink on one ſide, then turn the paper, and Write on the other ſide with milk what you would have ſecret, with a clean pen, and let it dry; then, when it is to be read, let the written ſide be held next the fire, and the milky letters will appear bluiſh on the other ſide, and may be perfectly read.

An exquiſite method of inviſible WRITING. The firſt ink. Take a pennyworth of litharge of gold or ſilver unprepared, pound it in a mortar; then infuſe it in a phial half full of ſtrong vinegar, ſhake them well together, and let them ſtand to ſettle; and, being clear, write upon your paper with a new pen, and it will not appear at all.

The ſecond ink. Burn cork till it has done ſmoking, extinguiſh it in aqua-vitæ, or ſpirit of wine; dry it, and mix it with water, and a little gum arabic, to the conſiſtence of thin paſte; when you would write with it, make it thinner with common water, and write upon what is written with the forementioned ink.

The third ink. Take yellow orpiment and quick lime, of each an ounce; pound them in a mortar, and put them in four ounces of common water, and ſtir them well; this water will take away the ſecond ink, and make what is written with the firſt appear.

WRITING *not to be read but in water.* Write with the juice of ſpurge or alum water, dry it, and it will not be legible without wetting.

To make black WRITING *vaniſh, and appear again.* Diſſolve burnt tartar in common water, and filtrate it; ſtrike it over the Writing, and it will diſappear.

To make the WRITING *appear again.* Diſſolve an ounce of white vitriol in a pint of water, filtrate it, ſtrike the paper over with it, and the Writing will preſently appear as before.

To WRITE *with ink, which will vaniſh in five days.* Infuſe an ounce of ſal armoniac four or five days in ſtrong water; make of it ink with a piece of touchſtone beaten fine, and what you Write with it will be gone in five days.

To WRITE *with an ink that ſhall vaniſh in twenty-four hours.* Boil galls in ſtrong water, put to it ſome vitriol, a little ſal armoniac, and a little gum arabic, and it is done.

Thomas Van WYKE, commonly called the older, was father of John Van Wyke, and a famous painter, born at Haerlem; he painted landſcapes, eſpecially havens and ſea-ports, ſhipping and ſmall figures; but his particular excellency lay in repreſenting chymiſts in their laboratories, and things of the like nature. He followed the manner of Peter de Laer. He returned to England after he had lived a conſiderable time abroad, and died here about ſeventy years ago.

Y.

YELLOW, is a bright colour, reflecting the moſt light of any after white.

There are divers Yellow ſubſtances that become white upon wetting, and drying them again ſeveral times at the ſun; as wax, linen cloth, &c.

The ſame bodies, if they be already white, and continue a long time in the air, without wetting, turn Yellow.

Paper and ivory, applied near the fire, become ſucceſſively Yellow, red, and black. Silk when turned Yellow is whitened with the fumes of ſulphur.

Yellow in dying is one of the five ſimple and mother colours. For the fineſt Yellows they firſt boil the cloth or ſtuff in alum and pot-aſhes, and give the colour with goud.

Likewiſe turmeric gives a good Yellow, though not the beſt. There is alſo an Indian wood that gives a Yellow colour, bordering on gold. There is another ſort of Yellow made of ſavoury, but this is inferior to them all.

With Yellow, red of madder, and that of goat's hair prepared with madder, are made the gold Yellow; aurora, macarate, iſabella, chamoiſe colour, which are all caſts or ſhades of Yellow.

YELLOWS. There are ſome objects, which have the appearance of gold, ſhining through the colours of green, red, or blue; ſuch as ſome ſort of flies and beetles, and the cantharides.

This golden tranſparency is very well imitated by laying on the drawing ſome leaf gold on the ſhaded part, a little giving in to the light ſide of the print.

The way of laying on the leaf gold is to waſh the part, where the gold is to be, with ſtrong gum water, and, when it is grown ſomething dryiſh, to lay on the gold as ſmooth and even as poſſible, preſſing it down cloſe with cotton. But in doing this care muſt be taken, that in laying on the gum water you do not exceed the limits you would have the gold appear to ſhine.

In this caſe the gold is to ſhine only through the tranſparent colour, which is to be laid upon it.

You muſt obſerve this, that the leaf gold will not regularly receive water colours, and for that reaſon it muſt be ſtroked over with a little thin liquor of ox gall in a pencil of camel's hair, and then it will receive any colour that we have a mind to paint upon it, and will hold it.

So you may have golden reds, golden greens, and golden blues, golden Yellows, golden purples, and what you pleaſe.

The greens may be firſt the verdigreaſe green, or the ſap green; the reds may be lake or carmine; the purples, lake and fine indigo, or carmine and indigo; and for the blues indigo on the dark ſide, and on the light ſide a little ſtroke of ultramarine blue, juſt to ſhine into the light, and it will have an admirable effect.

N. B. There is to be found upon roſe-trees, in June and July, a kind of beetle of a golden green colour, which will ſerve for a direction in this kind of painting.

But, if gold itſelf be uſed, it will be beſt to poliſh it, which you may do after the following manner:

There are to be ſeen in many manuſcripts fine golden letters, which riſe above the ſurface of the vellum or paper; the compoſition that raiſes them above the paper, is ſaid to be made of vermilion and the white of an egg, whiſked or beaten up to that conſiſtence as is called an oil, worked together like a kind of paſte, and with a ſtamp fixed to the vellum or paper, with gum arabic; on this figure of a letter waſh ſome ſtrong gum water with a camel's hair pencil, taking care that the gum does not reach more than the outlines; then lay on the leaf gold cloſe with ſome cotton, and as ſoon as it is dry rub it with ſome dry cotton, and then poliſh it with a dog's tooth; this will make it appear, as if it was really caſt in gold.

There is beſides this another way of working in gold, and that is performed by ſhell gold; but then it muſt be pure gold, and not that which is brought from Germany, which will turn green in a few days time.

Before you uſe this gold, cover the ſhady parts with vermilion; and, after your gold has been well rectified with ſpirits of wine, lay it on with gum water, which will readily mix with it; and when it is dry poliſh it with a dog's tooth.

In laying on the gold it may be beſt to leave the lights vacant of it, and ſo it will make a much brighter appearance than if the object was covered all over.

But, if one was to cover by accident the whole piece with gold, there is no better way to ſet it off, than by tracing over the ſhady parts with gall ſtone; or, which is much preferable, the Yellow, the compoſition of which you will find below, made of French berries,

berries, I mean that which is the deepeſt in colour; a little minium brightens it very much. How the minium is to be rectified you may ſee among the reds, and poliſh the gold before you uſe the minium on it.

After gold I ſhall treat of Yellows, as they fall gradually in their courſe of ſtrength.

The firſt Yellow is a kind of ſtraw colour, and is made of flower of brimſtone, which of itſelf is fine enough to mix with gum water.

A common way of illuminating prints is by giving the tincture of gamboge for a Yellow, and this may be of two or three ſorts, either fainter or ſtronger; the laſt to be a ſhade to the firſt, and the laſt to be ſhaded with the preparation of French berries.

Yellow oker will make another good pale Yellow; but it is a colour, rather of too much body for illuminating of prints; but yet, being well ground with gum water, it is of uſe after it has been well waſhed.

The plant celandine will afford another good Yellow, by infuſing it in water, and preſſing it gently, and then boiling the liquor with a little alum; this Yellow will incline a little to green.

But a Yellow, which ſome prefer to the reſt, and may be uſed in ſeveral capacities of lights, is one made of French berries, prepared as follows:

Boil two ounces of French berries in a quart of lixivium made of pearl-aſhes and water, till the liquor will give a fine tinge of Yellow to a bit of paper dipped into it; then pour it off from the berries, let the liquor cool, and then put it into a bottle for uſe.

Then again put a pint of the ſame lixivium to the berries, and boil them till the liquor is as deep coloured as gall ſtone; and this will be fit for the ſhade of any ſort of Yellows you can uſe.

This may be boiled till it produces a brown colour; and will, with a little ox gall, ſerve to ſhade any leaf gold that has been laid on paper, and is much preferable to gall ſtone in imitating any gold colour. It anſwers well upon a tincture of gamboge, or any of the former Yellows.

Next to this may be reckoned the tincture of ſaffron, in common water only, which affords a bright reddiſh Yellow, ſuch as one would have, to cover the ſhadowed parts of a print, for an orange colour; and, when ſaffron is infuſed in rectified ſpirits of wine, there is nothing higher; but then, except the colour be loaded with gum arabic, it will fly.

As for a deep Yellow with a body, Dutch pink comes the neareſt of any to the beforementioned ſtrong Yellow made of French berries in point of colour; and of a lighter Yellow is the

Engliſh pink, which is ſtill made of French berries, and in a body likewiſe.

Alſo a good Yellow colour, for illuminating of prints, may be extracted from the French roots of ginger, and it makes a fine green with tranſparent verdigreaſe.

N. B. The Engliſh and Dutch Yellow pinks are made with French berries ground to a fine powder, and boiled.

YELLOW *ſilk dyes, and firſt bloſſom* YELLOW. Dye it after the ſame manner as gold colour, then heighten it with orange dying ſuds, after which rinſe and dry it.

To dye ſilk YELLOW. Procure a clean kettle, put in a ſufficient quantity of water, and for every pound of ſilk put in two pounds of Yellow wood, and ſix ounces of galls; let the Yellow wood boil an hour before you put in the galls, and afterwards boil them together for half an hour, and then put in the ſilk, having firſt alumed and rinſed it, ſtirring the dye; then wring it out of the kettle with a little pot-aſhes; and, after it has been wrung out, put it into the dye again, and leave it there to ſoak for a whole night, and in the morning rinſe, beat, and dry it.

To dye ſtuffs a brimſtone YELLOW. Boil the ſtuff in three pounds of alum, one pound of tartar, and three ounces of ſalt for an hour; throw away the water, then make a liquor of Yellow brown, laying it in the ſame order as ſtraw in brewhouſes; then add ley aſhes, and draw the ſtuff through the dye three or four times very quick; to do which dexterouſly, it will require the aſſiſtance of three or four men.

Another. Let the ſtuffs be alumed as uſual for half an hour, and then for every pound of ware take half a pound of Yellow dye weed, and a handful of wood-aſhes; boil them a quarter of an hour, then throw the rinſed ware into the liquor, work it about, till you perceive it to be well dyed; then cool it and rinſe it out.

Of dying YELLOWS *and orange tawney.* 1. To dye a Yellow colour. Take water a ſufficient quantity, alum one pound, enter your yarn cloth, &c. boil two hours, and take it out, and waſh it clean. Take freſh fair water a ſufficient quantity, ſuſtic two pounds, let it boil, and enter your cloth; boil an hour, and take it out; this will dye twenty pounds weight.

2. To dye an orange tawney. Let your wool, yarn, flannel, ſtuff, or cloth, &c. be firſt dyed into a red colour; and then, being red, let it be dyed into a Yellow colour.

3. Another way to dye an orange tawney. Take ſtale wheat bran liquor a ſufficient quantity, alum three pounds; enter twenty yards of broad cloth, handle and boil three hours; take it out, cool and waſh it well. Take fair water, and good linge, or hed-

der,

der, which grows in moraſſes, moors, or ſwamps; boil it a good while, and take forth the hedder, and cool with a little Yellow; take it up and air it. Take freſh bran liquor a ſufficient quantity, madder two pounds; enter your cloth, and boil it with a quick fire, then take it out, cool it, and waſh it well. Obſerve you may make it a good Yellow with fuſtic, and then afterwards perfect it with madder.

To dye thread YELLOW. Boil eight pounds of broom, one pound of Spaniſh Yellow, one pound of crab-tree rind, and one pound of corn marigold in a kettle, with three quarts of ſharp ley; and work the thread in the liquor three times ſucceſſively, not ſuffering it to dry between whiles, and it will be of a beautiful and laſting colour.

Z.

Z. A. ſtands for Zazingeri, or M. Z. for Martin Zinkius.

Matthew ZAGEL, engraved ſeveral ornaments and groteſque pieces per lo traverſo, or with croſs ſtrokes; he lived in the year 1500, and uſed this mark.

Theodore ZAGHEL, his mark is a woman with her back towards you.

Domenico ZAMPIERI, called *Dominichino*, ſcholar of Denis Calvert and the Carraches, born in 1581, lived at Bologna, Rome, and Naples; excelled in hiſtory; died in the year 1641, aged ſixty years.

ZAFFER; this is called in Latin Zaffera, which Merret tells us comes from Germany; it is taken by ſome for a preparation of an earth for tinging glaſs blue; others take it for a ſtone, and he himſelf for a ſecret, aſſerting that there are but few authors who have made any mention of it, and no one that has told us what it is.

The method of preparing ZAFFER *for tinging glaſs.* The only preparation of Zaffer, according to Merret, is to grind it into a very ſmall powder, and ſearce it through a fine ſieve.

But Neri gives us one which makes the glaſs much finer, which is this:

Take Zaffer in the biggeſt pieces you can get, put it into earthen pans, and let it ſtand one day in the furnace; then put it into an iron ladle to be heated red hot in the furnace; take it thence, and ſprinkle it with ſtrong vinegar; being cooled, grind it fine on a marble ſtone, after which waſh it with warm water in earthen pans, letting the Zaffer ſettle to the bottom, and decanting

canting off the water gently; this will ſeparate the foulneſs and impurity from the Zaffer, which will remain at the bottom pure and clean; which muſt be dried and ground again, and then kept in veſſels cloſe ſtopped for uſe. This will tinge glaſs much better than the firſt.

ZEPHYRUS, the Weſt-wind, is repreſented, in painting, &c. by a youth with a merry countenance, holding in one hand a ſwan with wings diſplayed, as though about to ſing; on his head a garland of all ſorts of flowers.—It is called Zephyrus of ζωὴν φέρων, i. e. bringing life, becauſe it cheriſheth and quickeneth.

ZINK, is a kind of mineral or ſemi-metal, which ſome confound with biſmuth, and others with ſpelter.

Zink is a kind of mineral lead, very hard, white and brilliant, and which, though not ductile enough to denominate it a metal, yet will ſtretch a little under the hammer.

It is found plentifully in the mines of Goſſelaer in Saxony; that which is commonly ſold, is in large thick ſquare cakes, which would make one ſuſpect it were melted, when taken out of the mine, and caſt in moulds of that form.

Zink is uſed in purging and purifying tin, much after the ſame manner as lead is in purifying gold, ſilver, and copper.

Founders uſe it with turmeric to tinge copper, to which it gives a fine gold colour.

Mr. Homberg conjectures, with a great deal of probability, that Zink is no other than a natural mixture of two real metals, viz. tin and iron.

Francis Van ZOON, was an eminent Dutch painter of fruits, flowers, and plants; he was bred up at Antwerp under his father old Van Zoon, a painter in the ſame way. He married a niece of ſerjeant Streater's; ſhe brought him into the buſineſs of ſeveral perſons of quality, which firſt occaſioned his being known. He painted looſe and free, yet kept cloſe to nature, and all his pictures ſeem drawn by the life. He began ſome large pieces, wherein he propoſed to draw all the phyſical plants in the apothecaries garden at Chelſea; but, that work proving tedious, he deſiſted from it, having greater encouragement other ways. He died here in London about fifty years ago, and lies buried in St. James's.

ZOUST, or *Soeſt*, was an eminent Dutch face painter, who came into England about the year 1680, and found here encouragement ſuitable to his merit. The portraits he drew after men are admirable, having in them a juſt and bold draught, and good colouring; but he did not always execute with a due regard to grace, eſpecially in women's faces, which is an habit can only be acquired by drawing after the moſt perfect beauties.

Mr. Zouſt painted ſeveral perſons of very great quality; his colouring was very warm, and he was a great imitator of nature, but for the moſt part unfortunate in his choice. He died in London about eighty years ago.

Federico ZUCCHERO, born in 1543, ſcholar to his brother Taddeo Zucchero, lived in Rome, France, Spain, and England; excelled in hiſtory, portraits, ſculpture, and architecture; died in the year 1609, aged ſixty-ſix years.

Taddeo ZUCCHERO, born in the year 1529, ſcholar to his father Octaviano Gio. Petro Calabro, and ſtudied Raphael; lived at Rome, Tivoli, Florence, Caprarolo, and Venice; excelled in hiſtory; died in the year 1566, aged thirty-ſeven years.

F I N I S.