

# The Book of the Art of Cennino Cennini

A Contemporary Practical Treatise  
on Quattrocento Painting

Translated from the Italian, with  
Notes on Mediæval Art Methods  
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bind together, or not, at pleasure. So to the painter liberty is given to compose a figure, either upright or sitting, or half man, half horse, as he pleases, according to his fancy. Therefore, whether through great reverence or love, let all those persons who feel in themselves any kind or manner of knowledge, or power to help and adorn these principal sciences with some jewel, put themselves forward without any bashfulness, offering to the above-named sciences this little knowledge which God has given them.

A humble working member then of the art of painting, I, Cennino, born of Drea Cennino of the Colle de Valdelsa, was instructed in these arts for twelve years by Agnolo, son of Taddeo of Florence, my master, who learned the art from Taddeo his father, who was the godson of Giotto, and was his disciple for twenty-four years. This Giotto changed the art of painting from the Greek to the Latin (manner), and brought it to the modern (style); and he possessed more perfect art than ever any one else had had. In order to assist all those who would approach this art, I shall take note of all that was taught me by my master Agnolo, and of that which I have proved with my own hand; invoking first the high omnipotent God,—that is to say, the Father, Son, and Holy Spirit; secondly, that most delightful advocate of all sinners the Virgin Mary, and St. Luke

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the Evangelist, the first Christian painter, and my advocate St. Eustachius, and generally all the saints, male and female, of Paradise.

CHAP. 2.—*How some persons study the arts from nobleness of mind, and some for gain.*

It is the impulse of a noble mind which moves some towards this art, pleasing to them through their natural love. The intellect delights in invention; and nature alone draws them, without any guidance from a master, through nobleness of mind; and thus delighting themselves, they next wish to find a master, and with him they place themselves in love of obedience, being in servitude that they may carry their art to perfection. There are some who follow the arts from poverty and necessity, also for gain, and for love of the art; but those who pursue them from love of the art and true nobleness of mind are to be commended above all others.

CHAP. 3.—*What to do in the beginning of the pursuit of art.*

Now then, you of noble mind, who are lovers of this good, come at once to art and adorn yourselves with this vesture,—namely, love, reverence, obedience, and perseverance. And as soon as thou canst, begin

to put thyself under the guidance of the master to learn, and delay as long as thou mayest thy parting from the master.

CHAP. 4.—*How the rule shows into what parts and members the arts are divided.*

The foundation of the art and the beginning of all these labours of the hand is drawing and colouring. To these two parts these things are necessary; namely, to know<sup>1</sup> how to grind colours; to use glue; to fasten the cloth on the panel; to prime with gesso, to scrape and smooth the gesso; to make relievos in gesso; to put on bole; to gild; to burnish; to temper colours; to lay on ground colours; to trace by dusting powder<sup>2</sup>; to engrave by lines and by stamps (?); to carve; to colour; to adorn and to varnish pictures. To paint on walls it is necessary to wet them; to cover them with mortar; to embellish them; to polish (smooth) them; to design, to colour in fresco and finish in secco; to temper the colours; adorn<sup>3</sup> and retouch.

<sup>1</sup> Sapere tritare, o ver macinare, incollare, impannare, ingessare, e radere i gessi e pulirli, rilevare di gesso, mettere di bolo, mettere d'oro, brunire, temperare, campeggiare, spolverare, grattare, granare ovvero camusciare, ritagliare, colorire, adornare e inverniciare in tavola, ovvero ancona. Lavorare in muro, bisogna bagnare, smaltare, fregiare, pulire, disegnare, colorire in fresco, trarre a fino in secco, temperare, adornare, finire in muro. Camusciare may mean the same as granare but on a bigger scale. Grattare may mean engraving lines in the gold or scraping through the paint to the gilding beneath.

<sup>2</sup> Through pricked patterns.

<sup>3</sup> Probably means adding the gold and ultramarine.



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And this is the rule of the above-named grades, as to which, with that little knowledge which I have learned, I will explain step by step.

CHAP. 5.—*In what manner to begin drawing on a small panel, and how to prepare it.*

As has been said, it is necessary that you should have the habit of beginning to draw correctly.<sup>1</sup>

First, have a small panel of boxwood a hand length wide each way, well smoothed and clean,—that is to say, washed with clean water, rubbed and polished with sepia (bone of the cuttle-fish), which the goldsmith uses for marking. When this panel is quite dry, take a sufficient quantity of bones well ground for two hours, and the finer they are ground, the better they will be. Then collect the powder, and put it into dry paper; and when you want to prime the panel, take less than half the size of a bean of this bone-dust or less, mix it up with saliva, and before it is dry spread it with the finger over the surface of the panel, and before it dries, hold the panel in the left hand, and with the tip of the forefinger of the right hand, beat upon the panel until you see that it is quite dry, and that the bone-dust is spread all over it equally.

<sup>1</sup> Cennino sometimes uses the second person plural, but more frequently the singular. This sounds awkward in English, and henceforth I shall use the pronoun you and not thou.

CHAP. 6.—*How drawing can be done on several kinds of panels.*

A tablet of old figwood is suitable;<sup>1</sup> also certain tablets used by merchants which are made of parchment prepared with gesso coated with white lead and oil, using the bone-dust as I have said.

CHAP. 7.—*What kind of bones are proper for priming panels.*

You must now know what bones are proper. For this purpose take the bones of the thighs and wings of fowls or capons; and the older they are the better. When you find them under the table, put them in the fire, and when you see they are become whiter than ashes, take them out, and grind them well on a porphyry slab, and use it as I say above.

CHAP. 8.—*In what manner you should begin to draw with a style, and with what light.*

The bones also of the leg and shoulder of mutton are good, burnt as before directed. Then take a style of silver or brass, or anything else provided the point is silver, sufficiently fine (sharp) and polished and good. Then, to acquire command of hand in using the style, begin to draw with it from a copy as freely

<sup>1</sup> È buona la tavoletta del figaro ben vecchio.

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as you can, and so lightly that you can scarcely see what you have begun to do, deepening your strokes little by little, and going over them repeatedly to make the shadows. Where you would make it darkest go over it many times; and, on the contrary, make but few touches on the lights. And you must be guided by the light of the sun, and the light of your eye, and your hand; and without these three things you can do nothing properly. Contrive always when you draw that the light is softened, and that the sun strikes on your left hand; and in this manner you should begin to practise drawing only a short time every day, that you may not become vexed or weary.

CHAP. 9.—*How to arrange the light, and give chiaro-scuro and proper relief to your figures.*

If by accident it should happen, that when drawing or copying in chapels, or colouring in other unfavourable places, you cannot have the light on your left hand, or in your usual manner, be sure to give relief to your figures or design according to the arrangement of the windows which you find in these places, which have to give you light, and thus accommodating yourself to the light on which side soever it may be, give the proper lights and shadows. Or if it were to happen that the light should enter or shine right opposite or

full in your face, make your lights and shades accordingly ; or if the light should be favourable at a window larger than the others in the above-mentioned places, adopt always the best light, and try to understand and follow it carefully, because, wanting this, your work would be without relief, a foolish thing, without mastery.

CHAP. 10.—*The manner and process of drawing on parchment and on paper, and how to shade with water-colours.*

Let us return to our subject. You may also draw upon parchment, and paper made of cotton. On parchment you may draw or sketch with the above-named style, first rubbing and spreading some of the powdered bone-dust over the parchment, scattered thinly and brushed off with a hare's foot, and powdered like writing-powder or resin.<sup>1</sup>

If you like, when you have completed your drawing with the style, in order to make it clearer, you may fix the outlines and necessary touches with ink, then shade the folds with water-colour made of ink, that is, water about as much as a nutshell will hold, into which are put two drops of ink, and shade with a brush made of tails of the minever, blunt and nearly always dry.

<sup>1</sup> *i.e.* pounce, or powdered resin.

when the glue upon the slab is dry, take the point of a knife and begin somewhere to loosen the glue from the slab, so that you can with your hand take off this skin or paper you have made in this way. With great care you may detach this glue safely from the stone like a sheet of paper. Or, before you detach this skin of glue from the stone, take linseed oil boiled in the manner I shall direct when speaking of mordants, and with a soft brush go once over it; let it dry for two or three days, and it will be very transparent.

CHAP. 26.—*How transparent paper (carta lucida) may be made of cotton paper.*

This same *carta lucida* of which we have spoken, may also be made of cotton paper. The paper must be thin, even, and very white; oil it with linseed oil as before directed. It will be transparent and is good.

CHAP. 27.—*How you should endeavour to copy and design, following a master as much as you can.*

It is now needful that you should advance further in order to follow the path of this science. You have made tinted paper. It is necessary for you to keep to this method. Having practised drawing a sufficient time on tablets as I have before directed,

always take pains in drawing the best subjects which you can find, done by the hand of great masters. If you live in a place where there are many good masters, so much the better for you. But I counsel you always to choose the best and most famous; and daily following him, it will be against nature if you do not come close to his manner and style; for if you copy to-day from this master and to-morrow from the other, you will not acquire the manner of either; and you will necessarily become fantastic, for each manner will distract your mind. You will study this manner to-day and that to-morrow, and you will get neither perfectly; but if you continually follow the method of one master, your intellect must be very dull indeed if it gets no food. And it will happen that if nature has bestowed on you any invention, you will acquire a manner of your own, which cannot be other than good, because your hand and your understanding being always accustomed to gather the flowers, would scarcely know how to take thorns.

CHAP. 28.—*How, more than from the masters, you should draw continually from nature.*

Remember that the most perfect guide that you can have and the best course (helm), is the triumphal gateway of drawing from nature: it is before all

other example, and with a bold heart you may always trust to it, especially when you begin to have some judgment in design. And continue always, and without fail, to draw something every day, not too little to be enough, and it will do you excellent service.

CHAP. 29.—*How you should regulate your manner of living so as to preserve decorum, and keep your hand in proper condition ; and what company you should frequent ; and how you should select and draw a figure in relief.*<sup>1</sup>

Your manner of living should always be regulated as if you were studying theology, philosophy, or any other science ; that is to say, eating and drinking temperately at least twice a day, using light and good food, and but little wine ; sparing and reserving your hand, saving it from fatigue as throwing stones or iron bars, and many other things which are injurious to the hand, wearying it. There is still another cause, the occurrence of which may render your hand so unsteady that it will tremble and flutter more than leaves shaken by the wind, and this is frequenting too much the company of ladies.—Let us return to our subject. Make a pocket of sheets of paper glued together, or of light wood,

<sup>1</sup> Lionardo in his treatise advises solitude to painters.

CHAP. 34.—*Of a stone which is of the nature of charcoal for drawing.*

I have found that a certain black stone which comes from Piedmont is good for drawing ; it is a soft stone and very black ; it can be sharpened with a knife, for it is soft. You can bring it to the same perfection. Draw with it what you please.

CHAP. 35.—*Returning to the grinding of the colours.*

In order that step by step we may attain to the light of art, we come to the grinding of the colours, and to instructing you which are fine or coarse or impure ; that some require but little, others much grinding ; some demand one vehicle, some another ; and how they differ in colour, as in the manner of tempering them and grinding them.

CHAP. 36.—*What are natural colours (pigments), and how to grind black.*

You must know that there are seven natural colours ; namely, four which are of the nature of earths, as black, red, yellow, and green ; three are natural colours, but require the assistance of art, as white, ultramarine blue, or della magna blue, and

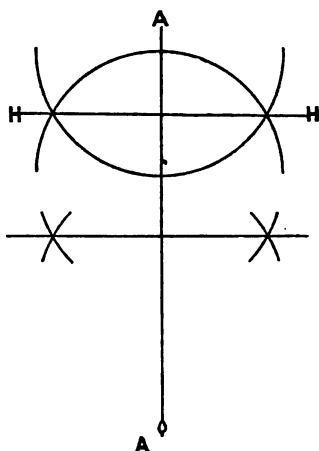


✓ CHAP. 67.—*The manner of painting on walls, that is, in fresco, and of colouring or painting the flesh of the faces of young persons.*

In the name of the most Holy Trinity, I will now put you to colouring. I begin first with painting on walls, and shall teach you step by step the manner in which you ought to proceed. When you are going to paint on walls, which is the most delightful and charming kind of work that there can be, procure, in the first place, lime and sand, both of them well sifted. If the lime is very rich and fresh, it will require two parts of sand, the third of lime. Grind them well together with water, and grind enough to last you fifteen or twenty days. Let it rest for some days till it be quite slaked; for if any heat remains in it, it cracks the plaster (intonaco). When you are going to plaster, first sweep the wall, and wet it well—you cannot wet it too much; and take the well-stirred lime, a trowelful at a time, and spread it over once or twice, till the intonaco becomes quite even on the wall. Afterwards, when you are going to work, remember to make the surface of the mortar quite rough (*bene arricciato*) with a good tooth (*rasposo*). Then, according to the subject or figures you have to make, if the intonaco is dry, take some charcoal, and design and compose, and take every measurement carefully, first striking one

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line, taking the centre of the space, and another for the horizon.<sup>1</sup> The perpendicular line by means of which the horizontal one is obtained must be made with a plumb-line. Then put one foot of the large compasses on the top of this line. Turn the com-



passes half round on the under side; then put the leg of the compasses on the point of intersection of these two lines<sup>2</sup> and make the other half-circle above, and you will always find a cross on your right hand by the lines intersecting each other. Do the same on the left hand, which will give you two

crosses, and the line between will be exactly level.<sup>3</sup> Then draw with charcoal, as I have before directed you, historical pieces and figures, and arrange your spaces always equal.<sup>4</sup> Next take a small and pointed

<sup>1</sup> The Italian implies that this should be done with a stretched string coloured with powder, which, being struck, marks the wall.

<sup>2</sup> The perpendicular and the half-circle.

<sup>3</sup> This diagram has been inserted to explain Cennino's meaning. AA is the plumb-line, HH the horizon line obtained by the intersecting circles.

<sup>4</sup> Probably meaning to balance and correspond in size and composition.

bristle-brush, with a little ochre without tempera, as liquid as water, and continue to draw your figures, shading them as you did with water-colours when I taught you to draw. Afterwards take a bunch of feathers and thoroughly brush away the charcoal.

Then take a little sinopia without tempera, and with a finely pointed brush mark out the nose, eyes, hair, and all the extremities and outlines of the figures, and let these figures be correctly set out in every measurement which helps you to realise and project the figures which you have to paint. Then make your fringes (or ornaments, *fregi*) and accessories as you please. Take some of the above-mentioned lime; stir it well with a trowel till it is like the consistence of ointment. Then consider how much you can paint in a day; for whatever you cover with the plaster you must finish the same day. Sometimes in winter, in damp weather, working on a stone wall, the plaster remains fresh till the next day; but if you can help it do not delay, because when painting in fresco, that which is finished in one day is the firmest and best, and is the most beautiful work. Then spread over a coat of thin intonaco, and not too much, first wetting the old intonaco. Next take your large hog's-hair brush in your hand, steep it in clean water, beat it and wet your plaster with it, and then with a slip of wood as wide as the palm of your hand, rub round and

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round over the wetted intonaco so as to remove the lime where you have put too much, and put more where there is not enough, and thus make your plaster quite smooth. Then wet the plaster with the same brush if necessary, and with the point of the trowel, which must be very clean and smooth, rub all over the intonaco. Then place your plumb-line as usual, and measure as you did on the underlying intonaco. Let us suppose that you can paint in one day the head only of a young male or female saint, such as that of our most holy Lady. Having thus smoothed the lime of your intonaco, procure a glazed vessel; the vessels should be all glazed and shaped like drinking or beer glasses, with a good heavy bottom that they may stand firmly, and not spill the colours. Take as much as a bean of dark ochre (for there are two kinds of ochre, light and dark); and if you have no dark ochre, take light ochre ground very fine; put it into your vase, and take a little black the size of a lentil, mix it with the ochre; take a little bianco sangiovanni (lime-white) as much as the third of a bean, and as much light cinabrese as will lie on the point of a pen-knife; mix all these colours thoroughly together, and make them flowing and liquid with water, without tempera. Make a sharp brush of fine soft bristles, which may be introduced into the quill of a goose, and with this brush indicate with proper

expression the face you are going to paint (remembering that the face is divided into three parts, namely, the forehead, the nose, and the chin, with the mouth), and with your brush nearly dry, put on this colour, little by little, which is called in Florence verdaccio, and in Siena Bazzèo.<sup>1</sup> When you have sketched out the form of the face, if the proportions or any other thing should displease you, with a large brush steeped in water, by rubbing over the intonaco, you can efface and repair what you have done. Then take a little verde-terra, very liquid, in another vase, and with a hog's-bristle brush, without a point, squeezed with the fingers and thumb of the left hand, begin to shade under the chin, and all those parts of the face which should be darkest—under the lips, the corners of the mouth, under the nose, and under the eyebrows, making the shade darker near the nose, a little on the edge of the eye towards the ear; and in the same manner making out with judgment (*sentimento*) the whole face and hands, which are hereafter to be coloured with flesh-colour. Next take a pointed minever brush, and strengthen all the outlines of the nose, eyes, lips, and ears, with the verdaccio. There are some masters who now, when the face is advanced thus far, take a little bianco sangiovanni

<sup>1</sup> This solitary reference to Siena is rather remarkable, but it may perhaps be connected with Vasari's statement that the MS. of the *Trattato* he had seen belonged to a Siennese goldsmith.

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tempered with water, and seek out the high lights and reliefs in proper order; then give the rosy colours to the lips and cheeks; then wash over the whole with the flesh-colours very liquid with water, and the colouring is done. It is a good plan to retouch afterwards the high lights with a little white. Some wash over the whole face with the flesh-colour first; they go picking out with a little verdaccio and flesh-colour, retouching with a little flesh-colour, and the work is finished. This plan is adopted by those only who know but little of the art; but do you follow the method of colouring which I shall point out to you, because Giotto the great master followed it. He had Taddeo Gaddi the Florentine for his disciple for four-and-twenty years, who was his godson. Taddeo had Agnolo his son; Agnolo had me for twelve years, whereby I gained this manner of colouring; which Agnolo coloured with more charm and freshness than Taddeo his father.

First take a small vase; put into it (a tiny morsel is enough) a little bianco sangiovanni, and a little light cinabrese, about as much of one as of the other. Temper them very liquid with clean water; then with a soft bristle-brush, squeezed between the finger and thumb as before, go over the face when you have finished putting it in with verde-terra; and with this red colour (rossetta) touch in the lips and the roses of the cheeks. My master was accustomed to put

the colour in the cheeks nearer the ear than the nose, because it assisted in giving relief to the face, and then he softened the rosiness well into the surrounding colours. Then have three small vases, and make three shades of flesh-colour, so that the darkest may be darker by one-half than the rossetta, and the other two each lighter than the other in regular gradations. Now take the little vase containing the lightest tint, and with a very soft bristle-brush without a point take some of this flesh-colour, squeezing the brush with the fingers, and pick out the reliefs of the face; then take the vase containing the middle tint of the flesh-colour, and paint the middle tint of the face, hands, and body, when you paint a naked figure. Afterwards take the third vase of flesh-colour, and go to the edges of the shadows, but always taking care at the contours that the verde-terra should not lose its value, and in this manner keep on softening one flesh-tint into another, until it is all covered as well as the nature of the work will permit. But mind that if you would have your work appear very brilliant, be careful to keep each tint of colour in its place, except that with skill you soften one delicately into the other. But seeing others work and practising with your hand, will make you perceive better than seeing it merely written. When you have painted in these carnations, make from them a tint much

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lighter—indeed almost white, and use this above the eyebrows, on the relief of the nose, the tip of the chin, and the upper eyelids; then take a sharp-pointed pencil of minever, and with pure white put in the whites of the eyes, and above the tip of the nose and a little on the fulness of the mouth (*della proda della bocca*), and so touch tenderly such lights. Then put a little black into another vase, and with a brush mark out the outlines of the eyes above the lights of the eyes, and make the nostrils of the nose, and the holes within the ear. Then put some dark sinopia into another vase, paint the under outline of the eyes, the contour of the nose, the brows and the mouth, and shade a little under the upper lip, which must be a little darker than the under. Before you finish these outlines thus, take the said brush and with verdaccio retouch the hair; then with the said brush, put on the lights of the hair with white, and with a watery wash of light ochre, and a soft bristle-brush, cover over the hair as you did the carnations. Mark out the extremities of the shadows with dark ochre, then with a small and very pointed pencil of minever put on the lights of the hair with bianco sangiovanni and light ochre. Retouch the outlines and extremities of the hair with sinopia as you did on the face, all over. And this is sufficient for you for a youthful face.



✓CHAP. 68.—*How to colour the face of an old person in fresco.*

When you wish to make the face of an old man, you must proceed in the same manner as in colouring the face of a young person, except that your verdaccio must be darker—also the carnations—observing exactly the same method as you did with the head of the young person, and also in the hands, feet, and body. But remember your old man must have his hair and beard grey. When you have put him in with verdaccio and white with your pointed pencil of minever, put into a small vase some bianco sangiovanni and a little black mixed together, and liquid, and with a pencil of bristles without a point, and very soft, well squeezed, lay a ground-colour on the hair and beard; then make this mixture a little darker, and pick out the shades; afterwards take a very small and pointed pencil of minever, and make the light hairs of the head and beard. And with such colours you can make fur.

CHAP. 69.—*How to paint hair and beards of other sorts in fresco.*

When you would paint hair and beards of other hues, either red, or sandy, or black (*o sanguigue, o rossette, o negre*), or any other colour you please,

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first make them in any case with verdaccio, and pick them out with white, and then lay on a flat colour in the usual mode, as above mentioned. Consider what colour you want, for the habit of seeing it will teach you how to do it.

### CHAP. 70.—*Of the proportions of the human figure.*

Take note that, before I proceed further, I will make you acquainted with the proportions of a man; I omit those of a woman, because there is not one of them perfectly proportioned. First, as I have said before, the face is divided into three parts, namely, the forehead, one; the nose, another; and from the nose to the chin, the third; from the bridge of the nose through the whole length of the eye, one of these parts; from the corner of the eye right up to the ear, one of these parts; from one ear to the other, the length of one face; from the chin to the pit of the throat, one part; from the fork of the throat to the top of the shoulder, one face; and the other shoulder the same; from the shoulder to the elbow, one face; from the elbow to the (*al nodo della mano*) beginning of the hand, one face and one part; the whole length of the hand, one face; from the fork of the throat to the pit of the stomach, one face; from the pit of the stomach to the navel, one face; from the navel to the beginning of the thigh (*nodo della coscia*),

one face; from the thigh to the knee, two faces; from the knee to the heel, two faces; from the heel to the sole of the foot, one part; the length of the foot, one face. The length of a man is equal to his width with the arms extended. The arm with the hand reaches to the middle of the thigh. The whole length of a man is eight faces and two of these measures. A man has on his left side one rib less than a woman. And all over the body there are bones. The handsome man is dark, woman fair, &c.

I shall not speak of irrational animals, because they appear to have no certain proportions. Draw them as frequently as you can from nature and you will see. And this requires much practice.

#### CHAP. 71.—*How to colour drapery in fresco.*

Let us now return to colouring in fresco and on walls. If you wish to colour any drapery, you will design it first carefully (*gentilmente*) with your verdaccio, and do not let your drawing show too much, but moderately. Then, whether you choose to make a white, or red, or yellow, or green drapery, or any colour you please, take three small vases. Take one and put into it any colour you please—we will say red; take some cinabrese, and a little bianco sangiovanni, and this shall be one gradation of colour; let it be thoroughly mixed with water. Of the other two

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colours make one of a very light tint—that is to say, put to it plenty of bianco sangiovanni. Now take some from the first vase and some of this light colour, and make a medium shade, and you will have three. Now take the first, that is, the dark shade, and with a large bristle-brush, a little pointed, go over the folds of the figure in the darkest places, but not exceeding half of the whole size of the figure. Then take the middle tint, lay on a flat colour from one dark fold to another, uniting them and softening them together, and softening the folds into the extremity of the shades; then with this middle tint go picking out the dark on the lighted side of the figure, preserving carefully the shape of the nude. Then take the third, lightest, colour, and in the same manner in which you picked out and laid the flat tint on the folds of the shadow side, so do the folds on the light side, arranging the folds with grace, propriety, and taste. When you have laid on each colour two or three times (never forsaking the plan of the colouring nor suffering one tint to take the place of, or give place to another, or mix with it except where they unite), soften and blend them together.<sup>1</sup> Then put in another vase, some colour much lighter than the lightest of the three, and pick out and give relief to the top of the folds. Into another vase put pure

<sup>1</sup> Se non quando si vengono a congiugnere sfuma li e commette li bene.

white, and put in finally the highest lights. Afterwards with pure cinabrese go over the darkest places and round some outlines, and this is the way drapery is usually done. But by seeing others work, you will understand better than by reading. When you have finished your figures, or historical pieces, leave them so that the lime and colours shall dry thoroughly all over; and if any drapery remain to be done when dry (in secco), you must proceed as follows.

✓ CHAP. 72.—*The manner of colouring walls in secco, and the proper temperas.*

Any of the colours used in painting in fresco may also be used in secco; but in fresco some colours cannot be used, as orpiment, cinnabar, azzurro della magna, minio, biacca, verderame, and lacca.<sup>1</sup> Those which may be used in fresco are giallorino, bianco sangiovanni, black, ochre, cinabrese, sinopia, verde-terra, and amatisto.<sup>2</sup> Colours used in fresco must be made lighter with bianco sangiovanni, and if you wish the greens to preserve their green tint, make them lighter with giallorino;<sup>3</sup> when you would have them take the colour of sage, add bianco. Those colours

<sup>1</sup> King's yellow, vermilion, blue verditer, red lead, white lead, verdigris, and lake.

<sup>2</sup> Naples yellow, lime-white, black, yellow ochre, red ochre with lime, red ochre, terre verte, soft hæmatite.

<sup>3</sup> No Naples yellow (giallorino) known now is fit for fresco or any water-colour work. Cobalt blue and green oxide of chromium, and several whites, blacks, and ochres may be added to the list.

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which cannot be used in fresco must be made lighter by the addition of biacca, giallorino, and sometimes orpiment, but orpiment is very rarely used; indeed I think it superfluous. To make a light blue, take three of the same kind of small vases as I directed you to use when speaking of the carnation tints and cinabrese, and prepare them in the same manner, except that where you then used bianco, you should now use biacca, and temper them all. Two sorts of tempera are good, but one is better than the other. The first tempera consists of the white and yolk of an egg, into which are put some cuttings of young shoots of a fig-tree; beat them well together; then add some of this tempera moderately, neither too much nor too little, to each of the vases, like mixing half wine with half water; then work with your colours, either white or green or red, as I directed you in fresco-painting; and you will proceed with your draperies in the same manner as you did in fresco, with a careful hand, waiting, however, till it (the plaster) is dry. If you use too much tempera, suddenly the colour will crack and peel off the wall. Be wise and skilful. Remember, before you begin to work, if you wish to make a drapery of lake, or of any other colour, take a clean sponge, and having mixed the white and yolk of an egg with about two porringers full of clean water, and mixed them well together, with the sponge squeezed half dry pass this

tempera over the whole of the space on which you have to paint in secco, and ornament in gold, and then colour freely as you please. The second kind of tempera is the yolk of the egg only; and you must know that this tempera is of universal application on walls, on panels, and on iron, and you cannot use too much of it, but be wise, and take a middle course. Before we proceed further, I would have you paint a drapery in secco in the same manner as you did in fresco, with cinabrese. Now I will have you make one of ultramarine blue. Take the three vases as usual; into the first put two parts azure and the third biacca; into the third, two parts biacca and one part azure: mix them and temper them as I have directed you. Then take the empty vase, that is to say, the second; put into it an equal quantity from each of the others, and stir all well together with a hog's-bristle brush, or, if you like, a minever brush blunt and firm; and with the first colour, that is to say the darkest, go round the outlines, marking out the darkest folds. Then take the middle colour and lay the flat tint of these dark folds, and mark out the light folds of the light side of the figure. Then take the third colour, and lay the flat tint of the light folds which come on the lighted side, and unite them with each other, softening and laying in the flat tints as I showed you how to do in fresco. Take the lightest colour, add to it some

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biacca with tempera, and put on the high lights of the folds of the light part. Then take a little pure biacca, and retouch a few of the highest lights as the nude shape of the figure requires. Afterwards with pure ultramarine pick out the darkest folds and outlines, in this way retouching (*leccando*, lit. licking) the drapery according to its situation and colours, without soiling or mixing them one with another except to soften them. And in this manner use lake and all other colours with which you work in secco.

CHAP. 73.—*To know how to make a purple colour (bisso).*

If you would make a beautiful purple colour, take equal quantities of fine lake and ultramarine and temper them. Then take three little vases as above, and leave some of the purple colour to retouch the shades; and of the rest which you take out make three gradations of colour with which to colour the drapery, making each lighter than the other, as before directed.

CHAP. 74.—*To make a purple (bisso) colour in fresco.*

If you would make a purple colour to use in fresco-painting, take indigo and amatisto and mix them without tempera as before mentioned, and make four shades. Then paint your drapery.



CHAP. 80.—*To make a changing drapery in fresco, or in secco, of ochre.*

To make a changing drapery of ochre either in fresco or in secco, cover with flat tints of ochre. Use bianco for the lights; for the lighter shades, shade with green; the darker, with black and sinopia, or, if you please, amatisto.

CHAP. 81.—*To make a changing drapery of a drab (berettino) colour, in fresco or in secco.*

If you would make a drab drapery, take black and ochre; that is, two parts ochre and the third black. Make your gradations of colour as I have before taught you in fresco and in secco.

CHAP. 82.—*To paint a drapery in fresco or in secco of a berettino colour, like that of wood.*

If you would make a drapery the colour of wood, take ochre, black, and sinopia; two parts ochre, and the other part black, and sinopia half the quantity of the ochre. With this make the gradations of your colours, in fresco or in secco, or in distemper.

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CHAP. 83.—*To make a drapery of azzurro della magna or ultramarine, or a mantle for the Virgin.*

If you would make a mantle for our Lady of azzurro della magna, or any other drapery that you wish to be of azure alone, first lay in fresco a ground on the mantle or drapery of sinopia and black, two parts sinopia and the third black, having previously marked out the finished drawing of folds, with an iron point or needle; then "in secco" take azzurro della magna, well washed either with lye or with clean water, and grind it a very little on the stone. Then, if the blue is of a fine and full colour, add to it a little diluted glue, neither too strong nor too weak. Of this I shall hereafter speak. Again, put to the said azure a yolk of egg; but if the azzurro should be rather pale, it must be tempered with the yolk of country-laid eggs, which are very red-coloured; stir it well together with a soft hog's-hair brush, and pass it three or four times over the drapery.<sup>1</sup> When the ground is well covered and dry, with a little indigo and black shade the folds of the mantle as well as you can, returning many times over the shades with the point of the brush. If you would make it lighter on the knees or any other part, scrape to the pure blue with the handle of the brush. If you lay a ground on a drapery with ultramarine, temper it in the usual way

<sup>1</sup> It is not quite clear from the Italian whether the yolk is added to the size just mentioned or is used separately.

given for azzurro della magna, and lay on two or three coats of it. To shade the folds, take fine lake and a little black, tempered with the yolk of an egg. Shade them as tenderly as you can and very neatly, first with a little of this lake and afterwards with the point,<sup>1</sup> and make as few folds as you can, because ultramarine does not like the neighbourhood of other mixtures.

CHAP. 84.—*To make a black drapery, like that of a monk or friar, in fresco and in secco.*

If you would paint a black drapery of a monk or friar, take pure black, making your gradations of colour as I before directed you, in fresco and in secco, with tempera.

CHAP. 85.—*A good way of colouring a mountain in fresco or in secco.*

If you wish to make mountains in fresco or in secco, make verdaccio, one part of black, and two parts of ochre. Make your gradations in fresco with bianco, without tempera; and in secco use biacca with tempera; and give them form, as to a figure with darks and lights. And when you have to paint mountains which appear at a distance, make your colours darker; and if you would have them seem nearer, let your colours be lighter.

<sup>1</sup> The meaning is not very clear.

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CHAP. 86.—*How to colour trees, plants, and grass, in fresco and in secco.*

If you would embellish these mountains with groves of trees and grass, first paint the trunk of the tree with pure black, which cannot be well done in fresco; then make some of the leaves of dark green or verde-azzurro (verde-terra is not good for this purpose) and let the foliage be well painted and dense; make a lighter green with giallorino, and let your leaves be smaller as you come towards the top of the tree. Touch the lights on the top with giallorino alone, and the trees and foliage will appear in relief; but first when you have painted the trees with black at the base, and also a few of the branches, let leaves shoot above, and then put the fruits, and scatter a few flowers and birds on the green grass.

CHAP. 87.—*How to colour buildings in fresco and in secco.*

If you would make buildings (*casamenti*), set them out in your design of any size you please, and stretch threads. Put them in first with verdaccio, or terra-verde, either in fresco or in secco, but let the colour be very liquid; some you may make purple, and some

cignerognolo (grey), some green, some drab (*berettino*, or wood-coloured), or any colour you please. Then make a long thin straight lath, one of the edges of which should be scooped out so as not to touch the wall, lest this should be spoiled by the passing over it and the rubbing of the brush and colours; and you will paint these cornices with great pleasure and delight. And in the same manner paint bases, columns, capitals, porticos, garlands of flowers, altar decorations, and the whole art of mazonneria,<sup>1</sup> which is a noble part of our art, and must be done with great delight. And remember that the same rules of light and shade which apply to figures, must be observed here with regard to these matters, and always apply this rule to buildings; that the cornice which you make at the top of the house on the shadow side must incline downwards; the middle cornice of the building facing you must be quite equal and even; and the cornice (plinth?) at the base of the building must ascend in a direction contrary to that at the top of the building, which descends.

<sup>1</sup> Mazonneria was anciently the art of making ornaments in relief, coloured and gilt, on panel pictures — French *maçonnerie*. See Milanese's glossary to Italian edition.

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CHAP. 88.—*How to draw a mountain from nature well.*

If you wish to draw mountains well, so that they appear natural, procure some large stones, rocky and not polished, and draw from these, giving them lights and shades as the same rule guides you.

CHAP. 89.—*How to paint in oil on walls, panels, iron, or whatever you please.*

Before we proceed further, I will teach you to paint in oil on walls, or on panels, which is much practised by the Germans, and in the same way on iron or stone. But we will first speak of walls.

CHAP. 90.—*How to begin painting in oil on walls.*

Cover your wall with plaster, exactly as you would do when painting in fresco ; except that where you then covered but a small space at a time, you are now to spread it over your whole work. Make your design with charcoal, and fix it with ink or verdaccio, tempered. Then take a little glue, much diluted with water—a whole egg, well beaten in a porringer, with the milky juice of the fig-tree, is a still better tempera—you must add to the said egg a glassful of clean

water. Then, either with a sponge or a very soft brush without a point, go once over the whole ground on which you are going to paint, and leave it to dry for one day at least.

CHAP. 91.—*How to make oil fit for tempering colours, and also for mordants, by boiling over the fire.*

It will be very useful to you to know how to prepare this oil, for many things that are done; therefore, take one, two, three, or four pounds of linseed oil, and put it into a new pipkin; if it is glazed, so much the better. Make a small furnace, and make a round hole, into which the pipkin fits exactly, so that the flame may not reach it, because the fire easily catches it, and there would be danger to the oil, and also of burning the house. When you have made your furnace, put a moderate fire in it; and the more slowly your oil boils, the better and more perfect will it be. Let it boil until it is reduced to half the quantity. But to prepare mordants, when it is reduced to half the quantity, add to each pound of oil one ounce of liquid varnish (*vernice liquida*), and let it be very fine and clear: and oil thus prepared is good for mordants.

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CHAP. 92.—*How to prepare good and perfect oil by cooking it in the sun.*

When you have prepared this oil (which is also cooked in another way, better for painting, but not for mordants, for which it must be done on the fire, that is, cooked), take your linseed oil, and in summer-time put it in a basin of bronze or copper. And in August (*quando è il sole leone*) place it in the sun; and if you keep it there till it is half wasted, it will be exactly right for mixing with colours. And you must know that, in Florence, I have found the finest and best that there can be.

✓ CHAP. 93.—*How to grind colours in oil and to use them on walls.*

Let us return to grinding the colours. Begin and grind colour by colour, as you did when working in fresco, except that where you then ground them with water, you must now grind them with oil. And when you have ground them, that is to say, all the colours, (for every colour can be mixed with oil except bianco sangiovanni), provide small vessels, either of lead or of tin, into which put these colours. And if you cannot find such, get glazed vessels, and put the ground colours into them; put them in a box, that they may keep clean. When you would paint a drapery



with three gradations of colour, as I have previously taught you, divide the space, and let each colour be laid in its proper place with a minever brush, uniting one colour well with another, the colours being very stiff. Then stop for a few days and return again to your work, see how the paint covers, and repaint where necessary. And in this way paint flesh or anything you please; and in this way mountains, trees, and every other work. Provide a vessel of tin or lead (something like a lamp), about the height of your finger, half fill it with oil, and keep your brushes in it that they may not dry.

CHAP. 94.—*How to paint in oil on iron, on panels, and on stone.*

And in the same manner you may work on iron, on stone, or on any panel, always sizing first, and also on glass or on anything you please.

CHAP. 95.—*How to adorn walls with gold or with tin.*

Having now taught you how to paint in fresco, in secco, and in oil, I will tell you how to embellish walls with gilded tin, white tin, and fine gold, and take especial notice that you use as little silver as possible, because it does not last, and becomes black on walls

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and on wood, but loses its colour quickest on walls. Use instead of it beaten tin, or tin plates. Beware also of alloyed gold (*oro di metà*) which quickly turns black.<sup>1</sup>

CHAP. 96.—*Showing that you should always make a habit of working with fine gold and good colours.*

It is usual to adorn walls with gilded tin, because it is less expensive than gold. Nevertheless, I give you this advice, that you endeavour to adorn always with fine gold and good colours, particularly in the figures of our Lady. And if you say that a poor person cannot afford the expense, I answer that if you work well and give time to your work, and good colours, you will acquire so much fame, that a rich person will come to you to pay for the poor one; and your name will stand so high for using good colours, that if some masters receive one ducat for painting a figure, you will be offered two, and your wishes will be fulfilled; according to the old proverb,<sup>2</sup> good work, good pay. And whenever you should not be well paid, God and our Lady will reward your soul and body for it.

<sup>1</sup> Silver and alloyed gold such as white gold, which is a very beautiful alloy, can be protected with "fine silver varnish" (see p. 262, note 2).

<sup>2</sup> Chi grossamente lavora, grossamente guadagna.

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take a little very rich lime, worked like paste or ointment, and spread it over thickly in the further parts, but thinner near the head. Then take the compasses again, when you have smoothed the lime well, and with the knife cut away the lime above the line of the compasses, and it will remain raised. Then have a strong thin stick of wood, and indent the rays round the glory, and this is the way you are to do it on walls.

CHAP. 103.—*How, after painting on walls, we arrive at painting panels.*

When you do not choose to adorn your figures with tin, you must use mordants. Of these I shall treat fully hereafter, in their order; as to which can be used on panels, on glass, on iron, and every other thing; which are strong, and capable of withstanding air, wind and water; which require to be varnished, and which not.

But let us return to our colouring, and from walls proceed to panels, which are the neatest and pleasantest part of our art. And remember, that he who learns to paint first on walls, and then on panels, does not become so perfect a master of the art, as when he happens to learn to paint on panels first, and then on walls.

✓ CHAP. 104.—*In what manner the art of painting pictures should be acquired.*

Know that you cannot learn to paint in less time than thus. In the first place, you must study drawing for at least one year,<sup>1</sup> on tablets; then you must remain with a master at the workshop, who understands working in all parts of the art; you must begin with grinding colours, and learn to boil down glues, to acquire the practice of laying grounds on panels, to work in relief upon them; and to rub them smooth and to gild; to engrave well; and this for six years; afterwards to practise colouring, to adorn with mordants, to make cloths of gold, and to be accustomed to paint on walls, for six more years,—always drawing without intermission either on holidays or workdays. And so, through long habit, good practice becomes a second nature. Adopting other habits, do not hope ever to attain great perfection. There are many who say they have learned the art without having been with a master. Do not believe them, for I give you this very book as

<sup>1</sup> The first year was a preliminary trial. If the master was satisfied at the end of that time, the boy was bound to him for twelve years. In the later years of the apprenticeship the lad's earnings helped to pay for his board and lodging. The pupil was sworn never to divulge the secrets of the art until he became a master himself, when he was allowed to teach his own pupils, first binding them to secrecy (*Ancient Practice of Painting*, I. cxviii.). See also Sienese Statute, *Carteggio inedito* (Gaye), Vol. II.

example: even studying it day and night, if you do not see some practice with some master, you will never be fit for anything, nor will you be able with a good face to stay among the masters.

CHAP. 105.—*How to make paste (colla di pasta over angolo, i.e. glue of flour or chestnut flour ?).*

Beginning to paint pictures (panels) in the name of the most Holy Trinity, and always invoking this name, and that of the glorious Virgin Mary, we must first prepare a foundation, and this is made with various kinds of glue. There is a cement made of boiled flour which is used by paper (or parchment) makers (*cartolari*) and the masters who make books, and is proper to fasten paper<sup>1</sup> (or parchment) together, and also to fix tin upon parchment. It is also used sometimes when paper is to be glued together for making transfer patterns.<sup>2</sup> This paste is made in the following manner. Fill a pipkin almost full of clean water, and make it very hot. When it is just going to boil, shake some fine flour, a little at a time, into the pipkin, stirring it continually with a small stick or spoon; make it boil, but do not make it too

<sup>1</sup> It is not possible to know certainly whether parchment or paper is meant when, as here, the word *carta* is used alone.

<sup>2</sup> Parchment for patterns (*patrons*) is frequently mentioned in English cathedral accounts.

CHAP. 113.—*How to begin to paint pictures.*

Now we are really going to paint pictures. In the first place, a panel must be prepared of the wood of the poplar, which is very good (*ben gentile*), or lime-tree, or willow. Begin with the flat surface of the picture; if it is defaced with knots, or if it is greasy, you must cut it away as far as the grease extends, for there is no other remedy. Take care that the wood is very dry; and if it is such a piece that you can boil in a cauldron of clean water, the wood will never do you the ill turn of splitting. Let us now return to the knots or any other defects in the flat surface of the panel. Take some size (*colla di spicchi*) and about a glassful of clean water, melt and boil two pieces (*spicchi*) in a pipkin free from grease; then put in a porringer some sawdust, and knead it into the glue; fill up the defects or knots with the wooden spatula, and let it dry. Then scrape smooth with a knife-point to level the surface. Examine if there is any nail, or other thing, that renders the panel uneven, and knock it well into the wood; then take glue and pieces of tin, beaten like quattrini (small pieces of money), and cover over the iron with them. And this is done that the rust of the iron may never rise through the ground. The flat surface of the panel must never be too much smoothed. Boil some glue made of

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shavings of sheep parchment till the water is reduced to one-third of what it was at first. Feel with the palms of the hands, and when you feel one hand stick to the other, it is sufficiently boiled. Strain it two or three times. Put half this glue into a pipkin, add a third part of water, and make it very hot. Then with a hog's-hair brush, large and soft, pass a coat of the glue over the panel and carved foliage or pyxes (*civori*)<sup>1</sup> or columns, or whatever you work upon, that is to be covered with gesso, and let it dry. Then take some of your first strong glue (size), and pass it twice over your work, letting it dry well between each coat of glue (size), and it will be properly sized. Do you know the effect of the first glue? It is merely a weaker liquor, and just as if when fasting, you eat a few comfits and drank a glass of good wine, which gives you an appetite for dinner. Such is this size; it adapts the wood for taking the size and grounds.

### CHAP. 114.—*How to fasten linen on panels.*

Having thus applied the size, get some linen cloth, old, fine, and white, and free from all grease. Take your best size, cut or tear large or small strips of this linen, soak these in the size, and spread them

<sup>1</sup> Milanesi considers that *civori* means the pinnacle-work of the upper part of the framing of altar-pieces.

with your hands over the surface of the panel; remove the seams, and spread the strips out with the palms of the hands, and leave them to dry for two days. And remember it is best to use size when the weather is dry and windy. Size is stronger in the winter than in summer, and in winter gilding must be done in damp and rainy weather.

CHAP. 115.—*How to lay grounds of gesso grosso on the flat surface of a picture with a spatula (stecca, float?).*

When the papel is quite dry, take the point of a knife like a file (*mella*, rasp?) which rasps well, and search over the surface to find any little knots, or any seams, and remove them. Then take some gesso grosso, that is to say volteranno (plaster of Paris) purified (*purgato*) and sifted like flour. Put a porringer-full on the porphyry slab, grind it well with this size by hand as you would grind colours, collect it with a spatula, and put it on the surface of the panel, and with a very smooth and rather large spatula (*stecca*) cover the whole surface, and whenever you can use the spatula, do so. Then take some of this ground plaster (*gesso*), warm it, take a soft hog's-hair brush and give it a coat on the cornices and foliage, as on the even surface with the spatula. Give three or four coats on the



other parts of the cornices; but on the level parts you cannot put on too much. Leave it to dry for two or three days. Then take the iron rasp (*mesella*) and scrape the flat surface; procure some small iron tools, which are called *raffiette*, such as you will find at the painters'; there are several kinds of them. Pick out all the cornices and foliage if not well done, that they may not be choked up, and generally take care that all defects of the flat surface or cornices are remedied by this grounding of plaster.

CHAP. II6.—*How to prepare gesso sottile (slaked plaster of Paris) for grounding panels.*

You must now prepare a plaster for fine grounds, called *gesso sottile*. This is made from the same plaster as the last, but it must be well purified (*purgata*), and kept moist in a large tub for at least a month; renew the water every day until it almost rots, and is completely slaked, and all fiery heat goes out of it, and it becomes as soft as silk. Throw away the water, make it into cakes, and let it dry; and this *gesso* is sold by the druggists to our painters.<sup>1</sup> It is used for grounding, for gilding, for working in relief, and other fine works.

<sup>1</sup> To make sure that the plaster cannot set, about a gallon of water must be put to each pound of plaster. When ready, the water can be strained off through a tammy or linen sieve.

CHAP. 117.—*How a panel is grounded with gesso sottile, and how it is to be tempered.*

Having laid on the gesso grosso, rubbed it smooth, and levelled it well and delicately, take some of this gesso sottile, and put it cake by cake into a pipkin of clean water, and let it absorb as much as it will. Put it little by little on the porphyry slab, and without adding any more water to it, grind it perfectly. Put it then on a piece of linen cloth, strong and white, and go on till you have as much as a loaf, then fold it up in this cloth, and wring it well to get as much water out as possible. When you have ground as much of it as you want, for you must consider what quantity you will want, that you may neither have to make two portions or tempered plaster, nor to throw away any good plaster, take some of the same size with which you tempered the gesso grosso. You must make sufficient at one time to temper both kinds of gesso. The gesso sottile requires less tempering than the gesso grosso; the reason? that the gesso grosso is the foundation of all your work, and you must also reflect, that howsoever much you press the gesso sottile a little water will still remain in it. For this reason, diligently make the same size for both. Take a new pipkin which is free from grease, and

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if it is glazed, so much the better. Take a cake of this gesso sottile and scrape it fine with a knife, as you would cheese, and put it into the pipkin. Put some of the size on it and work the gesso with the hand, as you would a paste for making fritters, smoothly and dexterously, so that it may not froth at all. Have a cauldron of water, and make it very hot, and put into it the pipkin containing the tempered gesso. This will keep the gesso warm, and it will not boil; for if it should boil it would be spoiled. When it is warm, take your panel, and with a large and very soft brush of hog's bristles, dip in the pipkin and take some in moderate quantity, neither too much nor too little, and spread it evenly over the level surfaces, the cornices, and the carved foliage. It is true that in doing this the first time you should spread and rub the gesso with your fingers and hand, round and round, and this will incorporate the gesso grosso with the gesso sottile. When you have done this, begin again, and lay on one coat with the brush without rubbing it in with the hand. Let it rest a little, but not so as to dry thoroughly; then go over again in the other direction also with the brush, and let it dry as usual, then give another coat in the reverse direction; and in this manner, always keeping your gesso warm, give the flat surfaces eight coats at least. Foliage and other reliefs do

with less, but you cannot put too much on the flat. This is on account of the rasping or rubbing down, which is done next.

CHAP. 118.—*How to prepare grounds of gesso sottile, not having previously laid on a ground with gesso grosso.*

Small and delicate works may, as I told you before, be sized two or three times, and then give them as many coats of gesso sottile only as you find from experience they will require.

CHAP. 119.—*How to temper and grind gesso sottile for working in relief.*

There are, nevertheless, some persons who grind gesso sottile with water and size. This is proper for grounds where no gesso grosso is used, which required to be more tempered. This same kind of gesso is good for raising foliage and other works in relief, which frequently has to be done. But when you are going to execute works in relief with this gesso, add to it enough Armenian bole to give it a little colour.

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CHAP. 120.—*How to begin to smooth the surface of a panel grounded with gesso sottile.*

When you have finished laying the ground, which must be done in one day, even if you work at it in the night, to allow the necessary intervals of time, let it dry without sun for two days and nights at least. The longer you let it dry the better. Tie some powdered charcoal like a ball in a piece of linen, and powder it over the ground of the picture. Then with a bunch of feathers of a hen or goose, spread this black powder equally over the ground. And this is because the surface cannot be scraped too perfectly, and because the iron tool with which you scrape the surface is flat also. Where you remove the surface the ground will be as white as milk. Then you will see whether it requires more scraping.

CHAP. 121.—*How to scrape gesso sottile on the flat surface, and of what use the scraping is.*

Take a flat raffietto, about as wide as a finger, and gently go all round the surface of the cornice once; then with a sharp rasp (or rough file), with as straight an edge as possible, scrape over the flat surface of the panel with a very light hand, not grasping the rasp at all tight, and brushing away the loose

gesso with the bunch of feathers. And know that this dust is excellent for removing grease from the pages of books. In the same manner rub smooth the cornices and foliage, and polish them as if they were ivory. And sometimes, through haste and much work, you may polish cornices and foliage, by rubbing them with a piece of linen, first wetted and then squeezed almost dry.

✓ CHAP. 122. — *How you should first draw on the panels with charcoal, and fix your outlines with ink.*

Having well scraped the ground, and made it like ivory, the first thing you should do is to draw on your panel with those sticks of willow charcoal which I previously taught you to make. But you must fasten the charcoal to a stick about the length of your face, which is a help in composing. Have a feather ready, that when any stroke appears to you to be badly drawn, you may efface it with the feather, and draw it again. Draw with a light hand, and shade the folds and the faces as you did with the brush or with the pen in making a pen-and-ink drawing. When you have finished drawing your figures, especially if the picture be of great value, and you expect gain and honour from it, leave it for a day, return many times to examine it, and improve it where there is need.

When it appears to you correctly drawn, and you can copy from or look at things done by other good masters, which is no shame to you if the figure is good, gently rub away the charcoal with the feather from the design, so that it may be just seen, but not too much, lest you should not understand your design. Put a few drops of ink into a glass half full of water, and with a pointed minever brush mark over the outline of your design. Then with the feather part of the pen, brush away the charcoal. With some more of the ink, and a flat-pointed minever brush, shade any fold and any shaded part of the face, and you will have made an agreeable design, which will cause all men to fall in love with your works.

CHAP. 123.—*How you should indicate the outlines of the figures when you are going to make a gold ground.*

When you have sketched your design on the panel, have a needle fixed into a small stick and engrave the outlines of the figure which come against the background which you are going to cover with gold, also the borders which you intend to make on the figures, and certain draperies, which are to be of cloth of gold.

CHAP. 131.—*How to lay bole on panels, and how to temper it.*

Let us return to our subject. When you have finished the reliefs of your picture, get some Armenian bole, and take it of good quality. Touch your underlip with it; if it sticks to it, it is good. You must now learn the best tempera for gilding. Put the white of an egg into a very clean glazed basin.<sup>1</sup> Take a broom of twigs cut equal, and as if you beat spinach, that is, beating it very fine, so beat up the white of egg with it till the basin is full of thick froth, which appears like snow. Then take a common drinking-glass, not too large, and not quite full of water; pour it on the white of egg into the basin. Let it stand from night till the next morning, to clarify itself. Then grind the bole with this tempera as perfectly as you can. Take a nice sponge, wash it well and dip it into clean water, and squeeze it; rub lightly with the sponge, not too wet, on those parts on which the gold is to be laid. Then with a large minever brush distemper this ground bole as liquid as water for the first coat, and where you have wetted with the sponge spread this bole thinly, and beware of leaving edges

<sup>1</sup> White of egg is usually whipped on a plate with a knife, or in a basin with a wire whisk. If any yolk is mixed with it, it will not froth properly.



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with the brush. Then wait a little; put a little more bole into your vessel, and let the second coat of colour have a little more body. Give it this second coat, and let it again rest a short time; put more bole into the vase, and give it a third coat in the same manner, making no hard edges. Put more bole still into the vase, and give it a fourth coat, and then you will have finished laying on the bole. Now you may cover over your panel with a cloth, to keep it as much as you can from dust, sun, and water.

### CHAP. 132.—*Another mode of tempering bole on panels, and of gilding.*

This tempera may be tempered in a different way. In order to grind the bole, put the whole albumen of an egg on the porphyry slab, then take the pulverised bole and grind it into this albumen. Grind it very fine, and if it dries under your hands, add to it while on the stone a little very clean water. When it is well ground, dilute it until it flows from the brush like clear water, and give your work three or four coats, in the manner above directed. This is a surer way than any other tempera if you have not much experience. Cover your picture, and keep it well from dust, as I have told you before.

CHAP. 133.—*How to gild with verde-terra on panels.*

You may also adopt the same process as that used by the ancients, namely, to stretch linen over the panel before you lay on the gesso, and then put on the gold with verde-terra, grinding the verde-terra as you like, in either of the two sorts of temperas, as I have taught you above.

CHAP. 134.—*How gold is laid on panels.*

When mild, damp weather comes, and you wish to lay on gold, place your panel flat on two trestles. Sweep it well with the feathers; and take a *raffietto* and feel with a light hand over the ground of bole, and if there is any dirt or knot or roughness, remove it. Take a piece of linen rag (or ravelling), and burnish the bole with great care. If you afterwards burnish it with a tooth, it cannot but be of assistance. When you have thus cleaned and burnished it, take a glass nearly full of clear water, very clean, and put into it a little of the white-of-egg tempera; if it is not at all stale, so much the better. Mix it thoroughly in the glass with the water. Take a large minever brush, made of the hairs of the tip of the tail, as I told you before. Take your fine gold, and with a pair of small pincers take

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up a leaf of the gold. Have a card (or piece of parchment?) cut square, with the corners cut off. Hold it in your left hand, and with the brush, which you hold in your right hand, wet the bole sufficiently to hold the piece of gold you have in your hand. Wet the bole equally, that there may not be more water on one part than on another; then let the gold gently approach to the wet bole, and take care that the gold projects a trifle beyond the card, so that the edge of the card may not get wet. Now, as soon as the gold has touched the wet part, withdraw the card quickly and suddenly; and if you perceive that the gold does not adhere everywhere, take a piece of clean cotton and press the said gold down as gently as you possibly can; and in this manner put on the other pieces; and when you are wetting for the second piece, be careful that the brush does not go so near the first piece as to go over it, and let the piece you are putting on overlap a trifle the one already laid, first breathing on it, that the gold may adhere where it overlaps. When you have laid on three pieces, press the first piece again with the cotton, first breathing on the gold, and that will show if any part requires mending. Prepare a cushion as large as a brick, made of a smooth piece of board covered with soft leather, white and not greasy, of the same kind as that of which boots are made. Nail it over,

stretched, and fill between the wood and the leather with a few shreds of cloth; then on this cushion spread out a piece of gold, and with a flat-edged knife cut the gold into pieces as you want it. For the defects which there may be, have a little pointed minever brush, and with the same tempera wet the defective places, and wetting with the lips the handle of the brush, it will be able to take up the little bits of gold and lay them on the defective place. When you have laid as much gold on the level surface as you can burnish in one day, for which I shall give you directions when you have to gild cornices and foliage, be careful to collect the small pieces of gold, as that master does who wishes to pave the road, being always as sparing of the gold as you can be, and always covering with a clean handkerchief the gold which you have laid on.

CHAP. 135.—*What stones are proper for burnishing gold.*

When you mean to burnish gold, you must have a stone called lapis amatisto,<sup>1</sup> which I will teach you to prepare. If you have not this stone, sapphires, emeralds, balass-rubies, topazes, rubies, and garnets are still better for those who can afford the expense,

<sup>1</sup> The stone intended here is not amethyst, but the hard hæmatite.

or on the place in the picture, move this little board round and round; the lime will become rough and ill-polished. Colour it as it is without being smoothed, and it will appear like real woollen cloth.

*Ad idem.* If you would make a silk drapery either on panels or on walls, lay on the ground with cinnabar and lighten with minium, or if you like with sinopia, and lighten with giallorino on walls; and in panels with orpiment or green or any colour you please. Lay the ground dark, and lighten it with a light colour.

*Ad idem.* On walls in fresco. Lay on a ground of indigo, and lighten with indigo and bianco sangiovanni mixed together, and if you would use these colours on panels or on shields, mix indigo with biacca, tempered with size; and in this manner you may make many kinds of drapery, according to your abilities and inclination.

CHAP. 145.—*How to paint on a panel, and how to temper the colours.*

I think that you will have so much understanding from your own experience as will enable you to teach yourself from these rules to paint skilfully many kinds of drapery, and by the grace of God we must come to painting on a panel. You must know that painting on panels is the proper employment of a

gentleman ; and that, with velvet on his back, he may do what he pleases. It is true that pictures are painted just as I explained to you to work in fresco, with three exceptions. One is that you must always paint the draperies and buildings before the faces. The second is that you must temper your colours always with yolk of egg and thoroughly tempered, always as much of the yolk as of the colours which you temper with it. The third is this, that the colours must be ground very fine, well ground, just like water. And that you may have great pleasure, begin to paint draperies in lake in the same manner that I taught you in fresco-painting ; namely, let the first gradation be pure colour, then take two parts lake and the third biacca—and of this when tempered make three gradations, but little varying from each other ; temper them well, and make them lighter with biacca finely ground. Then take your panel before you, and always keep it covered with a cloth for love of the gold and the ground, that they may not be hurt by the dust ; and that your work may be fair and clean when it leaves your hands. Then take a minever brush without a point, and begin to lay on the dark colour, and make out the shadows in what should be the dark part of the figure. Then in the usual manner take the middle tint and paint the reflected lights, and lights<sup>1</sup> of the dark folds, and begin with the same

<sup>1</sup> I dossi e relievi delle pieghe scure.

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colour to make out the folds of the lighted side. Then with the lightest colour paint the light reliefs on the light side of the figure, and in this manner return to the first dark folds of the drapery with the dark colour. And thus, as you have begun, go many times over with these colours, first one and then the other, painting them over and uniting them skilfully, and softening them tenderly. And now it is time to leave your work and to rest yourself for a short space, and then return to the work on your panel. You should always take pleasure in your work. When you have covered the ground properly with these three gradations of colour, take the lightest, and prepare another still lighter, always washing the former colours from the brush. Make another colour still lighter than this, and let them vary but little from each other. Then touch with pure white, tempered as above on the high lights; and thus paint the shades one after the other in regular gradations, until they reach the deepest shades of pure lake. And remember that, as you have made your colours in gradations, so you must arrange your vases in order of this gradation, that you may not mistake one for the other. Thus in this manner you may paint any colour you please, either red, or white, or yellow, or green. But if you would make a beautiful purple (*bisso*) colour take fine lake, and the best ultramarine blue, finely ground, and of this mixture,

with biacca, properly tempered, make your gradations of colour. If you would make a light blue colour, lighten it with biacca, and paint it in the manner above described.

CHAP. 146.—*How to paint draperies of blue, gold, or purple (porpora).*

If you would make a blue drapery, neither all mixed with white, nor all pure blue, take several shades of ultramarine, of which there are many, one lighter than the other. Colour them according to the lights and shades of the figure, in the manner I have shown you. And you may use them on walls, with the same tempera as above, in secco. And if you will not afford the expense of using these shades of ultramarine, you may find similar shades of azzurro della magna ; or if you wish to make a gold pattern on the blue, you may do so. You can touch with a little purple (*bisso*) in the dark of the folds and a little on the lights, making out the folds delicately on the gold. These draperies will please you much, particularly in the draperies of the Lord God. If you would clothe Our Lady in a purple drapery, paint the drapery white, and shade it with a very light bisso, but little removed from white ; make the patterns of fine gold, making out the folds in the gold with a little dark purple. This will be very lovely.



✓CHAP. 147.—*How to colour faces, hands, feet, and flesh generally.*

Having drawn and coloured draperies, trees, buildings, and mountains, you should next colour flesh, which you should begin in the following manner. Take a little verde-terra, and a little well-tempered biacca, and go twice over the face, hands, feet, and all the naked parts. But this first bed of colour must, when painting the faces of young persons with fresh complexions, be tempered with the yolk of the egg of a city hen; because they have lighter yolks than those laid by country hens, which, from their redness, are only fit to temper the flesh-colouring of old and dark persons. Now bear in mind, that when painting on walls you made your rosy tints (*rossette*) with cinabrese; on a panel they must be of cinnabar, and the first rosy tints must not consist of pure cinnabar, but you must add a little white (*biacca*) to it, and also to the verdaccio with which you first shade. Then, as you did in painting on walls, you must prepare three gradations of flesh-colour, one lighter than the other, laying every tint in its right place in the face, taking care not to cover over the whole of the verdaccio, but shading partially on it with the darkest flesh-colour, making it very liquid, and softening off the colour in the tenderest manner. On a panel more coats of colour are required than on a

wall, yet not so many but that the green tint under the flesh-colour should be just visible through it. When you have worked your flesh colours, and the face begins to look nearly right, make a flesh-tint lighter still, and paint the prominent parts of the face, putting on the lights gradually in the most delicate manner, until at last you touch in the highest lights, as over the eyebrows, and on the tip of the nose, with a little pure white. Paint the outlines of the upper eyelids with black, also the eyelashes and the nostrils. Then take a little dark sinopia with a little black, and make the outline of the nose, eyes, eyebrows, hair, hands and feet, and generally of every part, as I directed you when painting on walls always with the same tempera of yolk of egg.

✓ CHAP. 148.—*How to colour a dead man, his hair and beard.*

Next we shall speak of colouring a dead man,—that is to say, his face, his body, or any naked part that may be visible either on a panel or a wall; except that on a wall you need not first lay a ground tint of verde-terra. If it is laid on the half-tints, between the lights and shades, that will be sufficient. But on a panel you must lay it on in the usual way as directed for colouring living faces, and also shade it in the same way with verdaccio. You must use no

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rosy tints, because dead persons have no colour; but take a little light ochre for your three gradations of flesh-colour, mixed with white, and temper in the usual manner, laying each tint in its place, and softening them into each other, as well on the face as on the body. And in the same manner, when you have nearly covered your ground, make the lightest flesh-tint still lighter, reducing it to pure white for the highest lights. Then mark the outlines with dark sinopia, mixed with a little black, which is called 'sanguigno,' and in the same manner the hair, but not so that it shall appear to be alive but dead, with several shades of verdaccio, and as I showed you how to paint several kinds of beards on walls, in the same way paint on panels, and so paint the bones of Christians or rational creatures with this same flesh-colour.

### CHAP. 149.—*How to paint a wounded person or the wound.*

Having to paint a wounded person, you must lay a tint of pure cinnabar wherever the blood is to appear. Then take fine lake tempered in the usual manner, and shade the wound and the drops of blood.

CHAP. 150.—*How to colour water, or a river, with or without fish, on walls or on pictures.*

When you would paint water, a river or any other water, either with or without fish, on walls, or on panels—for walls take the same verdaccio with which you shaded faces on the lime intonaco—draw the fish, and shade them with the verdaccio; but only the shades on the back, for I must inform you that fish and irrational animals generally have their dark parts upwards, and their light parts beneath. When you have finished shading with the verdaccio, whiten them beneath, with bianco sangiovanni on walls, on panels with biacca, and then pass some touches of the same verdaccio over the fish and the water. If you would make a variety in your fish, let some have a row of spines of gold on their backs. In secco lay a tint of verdigris ground in oil, over the water, and the same on panels; or if you do not choose to use oil, take verde-terra, or verde-azzurro, and cover every part equally, but not so much but that you may see the fish and the waves of the water. And if needful lighten the waves with bianco on walls, and tempered biacca on panels. This is sufficient information for you on colouring. We shall now proceed to the art of embellishing,<sup>1</sup> but we must first speak of mordants.

<sup>1</sup> That is, with gilding.

if the wall is built of bricks; but it is most suited for panels and ironwork, and on anything which is varnished with liquid varnish. And these two ways for the two different species of mordants are enough for you.

#### CHAP. 154.—*Of varnishing.*

I think I have said enough on the subject of painting on walls in fresco, in secco, and on panels. But we shall say more further on about the manner of painting and gilding and making miniatures on parchment. But first I want you to see how to varnish pictures on panels and all other works except on walls.

#### CHAP. 155.—*How and when to varnish pictures.*

You must know that the best varnishing is to delay as long as possible after your picture is painted—the longer the better. And I speak truth when I say, that if you delay for several years, or at least for one year, your work will be much fresher. The reason of this is, that the colouring naturally acquires the same condition as the gold, which shuns a mixture with other metals; so that the colours, when mixed with their proper tempera, dislike the inmixture of other tempera. Varnish is a strong liquor and gives great force (*dimostrativo*), and will be obeyed in everything, and annuls every other tempera. And suddenly as you spread it over the picture, the colours lose their

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natural strength and must obey the varnish, and their own tempera has no longer power to refresh them. It is therefore proper to delay varnishing as long as you can ; for if you varnish after the tempera has had the proper effect on the colours, they will afterwards become more fresh and beautiful, and will remain always the same. Then take liquid varnish, the brightest and clearest you can obtain ; place your picture in the sun, wipe it and clean it as thoroughly as you can from dust and dirt of every kind, and take care that it is weather without wind, because the dust is subtle ; and every time that the wind blows it over your picture, you will have more difficulty in making it clean. You might well varnish in such a place as a green meadow or by the sea, that the dust may do no harm. When you have warmed the picture in the sun, and the varnish also, place the picture level, and with your hands spread the varnish all over thinly and well. But be careful not to go over the gold with it, for association with varnish and other liquors are displeasing to it. If you do not choose to spread the varnish with your hand, dip a small piece of fine sponge into the varnish, rolling it with the hand over the picture varnish in the usual manner, adding or taking away as is needful. If you wish the varnish to dry without sun, boil it well first, and the picture will be much better for not being too much exposed to the sun.

CHAP. 156.—*How in a short time you can make a picture look as if it had been varnished.*<sup>1</sup>

If you would have your picture appear in a short time to have been varnished when it has not been, take the white of an egg, beaten thoroughly with a whisk as much as it can be, until it makes a thick froth. Let it stand one night to clear itself. Put the clear part into a clean vessel, and spread it with a minever brush over your works, which will appear as if varnished, and they are even stronger. This varnish is applicable to detached figures in relief either of wood or stone. In this way you may varnish the faces, hands, and flesh of such figures generally. And this is enough to say about varnishing. We will now speak of painting miniatures on parchment.

CHAP. 157.—*How you must do miniature-painting and put gold on parchment.*

First, if you would paint miniatures you must draw with a leaden style figures, foliage, letters, or whatever you please, on parchment, that is to say in books: then with a pen you must make the delicate permanent outline of what you have designed. Then you must

<sup>1</sup> White of egg is sometimes used as a temporary varnish on oil-painting, but must be removed before the permanent varnish or it cracks. It could not be removed from tempera.

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### CHAP. 162.—*Of the way to work on linen or hempen cloth.*<sup>1</sup>

Now let us speak of the way to work on cloth, that is, either linen or canvas, and you will observe this method in painting on any kind of cloth; that in the first place it is necessary to stretch it firmly on the frame (stretcher), nailing the seams straight first, then going round and round with little nails, spreading it equally and in an exact manner, getting all the

<sup>1</sup> The later chapters of the *Trattato* beginning here, which are not contained in the Ottobonian MS. first printed by Tambroni, treat of the more decorative parts of the painter's art, and one or two of these are almost childish as that on mosaic, so that, there being also a slight difference in style, I have sometimes thought that these chapters were not written by Cennino. Such decorative work, however, certainly formed part of the painter's business, and is often alluded to by Vasari. Some extracts from the Latin statute of the Guild of Painters of Venice, dated 1272, in J. P. Richter's "National Gallery," give particulars of what was expected from them. Their works are classed as (1) *Scuta* and *rodella*, namely shields, oval and round, decorated with paintings; (2) *Cophani* and *arcella*, or painted chests; (3) Utensils for the table, *i.e.* plates and dishes of wood and painted table-tops. It is only at the end of the list that *ancone* are mentioned; the word always used by Cennino as synonymous with *tavola*. Both meant small sacred pictures on wood of the Madonna or saints. It does not seem, however, that each person did all the kinds of work. Up to the last days of the Republic the following craftsmen were included in the ranks of the Guild. At its head were the *dipintori*, the painters; then the *miniatori*, or miniaturists; the *disegnatori*, designers, who only furnished drawings for embroidery; the *mascheteri*, the mask painters, who also produced plaster figures; *lavoratori di cuoi d'oro* who furnished the gilded leather hangings; finally the *cartolari*, who made and sold playing cards. It was only in the year 1636 that the painters of pictures withdrew from the Guild.



threads precisely in the right direction. When you have done this, take gesso sottile (slaked plaster of Paris) and a little starch, or a little sugar, and grind these with size in the same manner that you tempered gesso for panels, grinding it very fine; but first with this size, without gesso, go once over the whole; and if the size were not so strong as that which is mixed with the gesso, never mind. Let it be as hot as possible, and with a blunt, soft bristle-brush, put some all over every part where you have to paint. Then take the cloth when it is dry; have a knife-blade (*mella di coltello*) level at the edge and straight as a cord, and with it put this gesso on the cloth, putting it on and scraping it off equally, and the less gesso you leave on the better; only just let it fill up the holes between the threads. It is enough to put the gesso on once. When it is dry, take a knife that scrapes well, and look over the cloth to see whether there are any knots or lumps, and remove them; and then take your charcoal, and in the same way that you drew on the panel, draw now on cloth, and fix the drawing with water-colour made of ink. Next I wish to teach you, that if you wish to make glories and backgrounds of burnished gold, this is put on both linen and canvas with mordants, and because the following way is marvellously better than others which many people have used, I am going to tell you about it; and the cloth can be rolled up and folded, without hurting the

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gold and the colours. First take the said gesso sottile with a little bole, and temper this gesso with a little white of egg and size, and put one coat over the place where you are going to lay on gold. When it is dry, scrape it a little; then take bole, ground and tempered as it should be for putting on a panel, and put on five or six coats of it, and leave it for a few days. Put on your gold exactly as you would on a panel, and burnish it, holding under the cloth a smooth firm board, having a cushion between the cloth and the board, and in this way engrave and stamp the glories (or diadems), and they will be exactly the same as on a panel. But it is advisable then, as sometimes these banners which are made for churches are carried outside when it rains, indeed necessary, to see to having a very clear varnish, and when you varnish the painting, varnish a little the diadems and the gold background.

You must colour on cloth in the method used for panels, that is, in stages (*di passo in passo*), and it is pleasanter than working on panels; because the cloth retains the moisture (*il molle*) a little;<sup>1</sup> and it is exactly like working in fresco, that is, on walls. Also I warn you that when you are colouring, the colours must be

<sup>1</sup> May this be a reference to the method suggested by Vasari and Armenini of sponging the back of a tempera picture on canvas and so being able to keep the painting moist for a time? It should be clearly understood that even so the paint could not be dragged and worked like fresh oil-paint. (Vasari, *Introd.*, c. 25; Armenini, *De veri Precetti della Pittura*, Ravenna, 1587, L. ii. c. 8.)

put on in many, many coats, even more than on panels, because cloth has no substance like panels, and the varnishing will not show up bright, if the paint is thin. Temper the colours similarly as for a panel. I will not speak at greater length on this subject.

CHAP. 163.—*How to work on black or blue cloth or on a curtain.*

If you were to have to work on black or blue cloth such as a curtain, stretch your cloth in the manner described above. It is not necessary to put on gesso; you cannot draw with charcoal. Take tailor's chalk, and carefully make such little pieces of it as you would make sticks of charcoal; and put them into the opening of a goose-quill, of whatever size is required. Put a stick to the quill and draw lightly. Then fix it with tempered biacca. Then put on a coat of that size which you temper gesso with on panels: then lay the ground-colour as much as you can, and paint the draperies, faces, mountains, buildings, and what seems good to you, and temper in the accustomed way. Also in painting curtains, you may take white cloth, and apply it upon the blue cloth, stuck on with paste in the manner of glue; and put it on according to the figures which you wish to disperse over the space, and you can paint it with certain water-colours without varnishing afterwards. And a

good many are done in this way and cheaply, and are very good for the price. Also on curtains you can make foliage enrichments with the brush, of indigo and biacca on the plain ground, tempered with size; and leave among this foliage work, some good spaces, to put in gilt adornments, made with oil mordants.

CHAP. 164.—*How to design on cloth or canvas for the use of embroiderers.*

Also you must sometimes provide embroiderers with various sorts of designs. And for this work make these masters prepare cloth or canvas well stretched on a frame; and if it is white cloth (linen, probably), take your accustomed charcoals and draw what you like. Then take pen and ink and draw it correctly, as you did with a brush on panels. Then brush away the charcoal, then take a well-washed sponge with the water squeezed out. Rub the linen on the opposite side from the drawing, and use the sponge just so much that the linen (cloth) is wetted as much as the drawing will bear. Then take a small soft minever brush, dip it in the ink, squeeze it well, and with this begin to shade in the darkest places, lightening and softening little by little. You will find that however coarse the cloth may be, in this way the shadows will be so softened that it will seem a marvel to you. And if the cloth should dry before you have