Many will abandon their own habitations and take with them their own goods, and go and inhabit other countries.

Men will pursue the thing which they most greatly fear; that is to say, they will be miserable in order to avoid falling into misery.

Men standing in separate hemispheres will converse with each other, embrace each other, and understand each other's language.

129.

We should not desire the impossible.

{59}

II

THOUGHTS ON ART

* *

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[Sidenote: Painting declines when aloof from Nature]

The painter's work will be of little merit if he takes the painting of others as his standard, but if he studies from nature he will produce good fruits; as is seen in the case of the painters of the age after the Romans, who continued to imitate one another and whose art consequently declined from age to age. After these came Giotto the Florentine, who was born in the lonely mountains, inhabited only by goats and similar animals; and he, being drawn to his art by nature, began to draw on the rocks the doings of the goats of which he was the keeper; and thus he likewise began to draw all the animals which he met with in the country: so that after long study he surpassed not only all the masters of his age, but all those of many past centuries. After him art relapsed once more, because all artists imitated the painted pictures, and thus from century to century it went on declining, until Tomaso the Florentine, called Masaccio, proved by his perfect work that they who set up for themselves a standard other than nature, the mistress of all masters, labour in vain.

{60}

Thus I wish to say, in regard to these mathematical matters, that they who merely study the masters and not the works of nature are the grandchildren, and not the children, of nature, the mistress of good masters. I abhor the supreme folly of those who blame the disciples of nature in defiance of those masters who were themselves her pupils.

[Sidenote: Its Origin]

2.

The first picture was a single line, drawn round the shadow of a man cast by the sun on the wall.

3.

Vastness of the field of painting: All that is visible is included in the science of painting.

[Sidenote: Defence of Painting]

4.

With due lamentation Painting complains that it has been expelled from the liberal arts, because it is the true daughter of nature and is practised by means of the most worthy of the senses. Whence wrongly, O writers, you have excluded painting from the liberal arts, since it not only includes in its range the works of nature, but also infinite things which nature never created.

5.

Because writers have had no knowledge of the science of painting, they have not been able to {61} describe its gradations and parts, and since painting itself does not reveal itself nor its artistic work in words, it has remained, owing to ignorance, behind the sciences mentioned above, but it has thereby lost nothing of its divinity. And truly it is not without reason that men have failed to honour it, because it does honour to itself without the aid of the speech of others, just as do the excellent works of nature. And if the painters have not described the art of painting, and reduced it to a science, the fault must not be imputed to painting and it is no less noble on that account, since few painters profess a knowledge of letters, as their life would not be long enough for them to acquire such knowledge. Therefore we ask, Is the virtue of herbs, stones and plants non-existent because men have been ignorant of it? Certainly not; but we will say that these herbs remained noble in themselves without the aid of human tongues or letters.

[Sidenote: Painting]

6.

A science is more useful in proportion as its fruits are more widely understood, and thus, on the other hand, it is less useful in proportion as it is less widely understood. The fruits of painting can

be apprehended by all the populations of the universe because its results are subject to the power of sight, and it does not pass by the ear to the brain, but by the same channel by which {62} sight passes. Therefore it needs no interpreters of diverse tongues, as letters do, and it has instantly satisfied the human race in the same manner as the works of nature have done. And not only the human race, but other animals; as was shown in a picture representing the father of a family to whom little children still in the cradle gave caresses, as did the dog and the cat in the same house; and it was a wonderful thing to see such a sight.

7.

The arts which admit of exact reproduction are such that the disciple is on the same level as the creator, and so it is with their fruits. These are useful to the imitator, but are not of such high excellence as those which cannot be transmitted as an inheritance like other substances. Among these painting is the first. Painting cannot be taught to him on whom nature has not conferred the gift of receiving such knowledge, as mathematics can be taught, of which the disciple receives as much as the master gives him; it cannot be copied, as letters can be, in which the copy equals the original; it cannot be stamped, in the same way as sculpture, in which the impression is in proportion to the source as regards the quality of the work; it does not generate countless children, as do printed books. It alone remains noble, it alone confers honour on its author and remains precious {63}

and unique, and does not beget children equal to itself. And it is more excellent by reason of this quality than by reason of those which are everywhere proclaimed. Now do we not see the great monarchs of the East going about veiled and covered up from the fear of diminishing their glory by the manifestation and the divulgation of their presence? and do we not see that the pictures which represent the divine deity are kept covered up with inestimable veils? their unveiling is preceded by great sacred solemnities with various chants and diverse music, and when they are unveiled, the vast multitude of people who are there flocked together, immediately prostrate themselves and worship and invoke those whom such pictures represent that they may regain their lost holiness and win eternal salvation, just as if the deity were present in the flesh. This does not occur in any other art or work of man. And if you say that is owing to the nature of the subject depicted rather than to the genius of the painter, the answer is that the mind of man could satisfy itself equally well in this case, were the man to remain in bed and not make pilgrimages to places which are perilous and hard of access, as we so often see is the case. But if such pilgrimages continually exist, what is then their unnecessary cause? You will certainly admit that it is an image of this kind, and all the writings in the world could not succeed in representing the {64} semblance and the power of such a deity. Therefore it appears that this deity takes pleasure in the pictures and is pleased that it should be loved and revered, and takes a greater delight in being worshipped in that rather than in any other semblance of itself, and by reason of this it bestows grace and gifts of salvation according to the belief of those who meet together in such a place.

[Sidenote: Painting excels all the Works of Man]

8.

The eye, which is called the window of the soul, is the principal means by which the brain can most abundantly and splendidly contemplate the infinite works of nature; and the ear is the next in order, which is ennobled by hearing the recital of the things seen by the eye. If you, historians and poets, or mathematicians, had not seen things with the eyes, you could not report of them in writing. If thou, O poet, dost tell a story with thy painting pen, the painter will more easily give satisfaction in telling it with his brush and in a manner less tedious and more easily understood. And if thou callest painting mute poetry, the painter can call poetry blind painting. Now consider which is the greater loss, to be blind or dumb? Though the poet is as free as the painter in his creations and compositions, they are not so satisfactory to men as paintings, because if poetry is able to describe forms, actions and places in words, the painter deals with the very {65} semblance of forms in order to represent them. Now consider which is nearer to man, the name of man or the image of man? The name of man varies in diverse countries, but death alone changes his form. If thou wast to say that painting is more lasting, I answer that the works of a coppersmith, which time preserves longer than thine or ours, are more eternal still. Nevertheless there is but little invention in it, and painting on copper with colours of enamel is far more lasting.

We by our art can be called the grandsons of God. If poetry deals with moral philosophy, painting deals with natural philosophy; if poetry describes the action of the contemplative mind, painting represents the effect in motion of the action of the mind; if poetry terrifies people with the pictures of Hell, painting does the same by depicting the same things in action. If a poet challenges the painter to represent beauty, fierceness, or an evil, an ugly or a monstrous thing, whatever variety of forms he may produce in his way, the painter will cause greater satisfaction. Are there not pictures to be seen so like reality that they deceive men and animals?

[Sidenote: Painting creates Reality]

9.

The imagination is to the effect as the shadow to the opaque body which causes the shadow, and the proportion is the same between poetry and painting. Because poetry produces its results in the {66} imagination of the reader, and painting produces them in a concrete reality outside the eye, so that the eye receives its images just as if they were the works of nature; and poetry produces its results without images, and they do not pass to the brain through the channel of the visual faculty, as in painting.

10.

Painting represents to the brain the works of nature with greater truth and accuracy than speech or writing, but letters represent words with greater truth, which painting does not do. But we say that the science which represents the works of nature is more wonderful than that which represents the works of the artificer, that is to say, the works of man, which consist of words--such as poetry and the like--which issue from the tongue of man.

[Sidenote: The Painter goes to Nature]

11.

Painting ministers to a nobler sense than poetry, depicts the forms of the works of nature with greater truth than poetry; and the works of nature are nobler than the words which are the works of man, because there is the same proportion between the works of man and those of nature as there is between man and God. Therefore it is a more worthy thing to imitate the works of nature, which are the true images embodied in reality, than to imitate the actions and the words of men.

{67}

And if thou, O poet, wishest to describe the works of nature by thine unaided art, and dost represent various places and the forms of diverse

objects, the painter surpasses thee by an infinite degree of power; but if thou wishest to have recourse to the aid of other sciences, apart from poetry, they are not thy own; for instance, astrology, rhetoric, theology, philosophy, geometry, arithmetic and the like. Thou art not then a poet any longer. Thou transformest thyself, and art no longer that of which we are speaking. Now seest thou not that if thou wishest to go to nature, thou reachest her by the means of science, deduced by others from the effects of nature? And the painter, through himself alone, without the aid of aught appertaining to the various sciences, or by any other means, achieves directly the imitation of the things of nature. By painting, lovers are attracted to the images of the beloved to converse with the depicted semblance. By painting whole populations are led with fervent vows to seek the image of the deities, and not to see the books of poets which represent the same deities in speech; by painting animals are deceived. I once saw a picture which deceived a dog by the image of its master, which the dog greeted with great joy; and likewise I have seen dogs bark at and try to bite painted dogs; and a monkey make a number of antics in front of a painted monkey. I have seen swallows fly and alight on painted {68} iron-works which jut out of the windows of buildings.

[Sidenote: Superiority of Painting to Philosophy]

12.

Painting includes in its range the surface, colour and shape of

anything created by nature; and philosophy penetrates into the same bodies and takes note of their essential virtue, but it is not satisfied with that truth, as is the painter, who seizes hold of the primary truth of such bodies because the eye is less prone to deception.

[Sidenote: Painting & Poetry]

13.

Poetry surpasses painting in the representation of words, and in the representation of actions painting excels poetry; and painting is to poetry as actions are to words, because actions depend on the eye and words on the ear; and thus the senses are in the same proportion one to another as the objects on which they depend; and on this account I consider painting to be superior to poetry. But since those who practised painting were for long ignorant as to how to explain its theory, it lacked advocates for a considerable time; because it does not speak itself, but reveals itself and ends in action, and poetry ends in words, which in its vainglory it employs for self-praise.

[Sidenote: Painting is Mute Poetry]

14.

What poet will place before thee in words, O {69} lover, the true

semblance of thy idea with such truth as will the painter? Who is he who will show thee rivers, woods, valleys and plains, which will recall to thee the pleasures of the past, with greater truth than the painter? And if thou sayest that painting is mute poetry in itself, unless there be some one to speak for it and tell what it represents--seest thou not, then, that thy book is on a lower plane? Because even if it have a man to speak for it, nothing of the subject which is related can be seen, as it is seen when a picture is explained. And the pictures, if the action represented and the mental attributes of the figures are in the true proportion one to another, will be understood in the same way as if they spoke.

15.

Painting is mute poetry, and poetry is blind painting. Therefore these two forms of poetry, or rather these two forms of painting, have exchanged the senses through which they should reach the intellect. Because if they are both of them painting, they must reach the brain by the noblest sense, namely, the eye; if they are both of them poetry, they must reach the brain by the less noble sense, that is, the hearing. Therefore we will appoint the man born deaf to be judge of painting, and the man born blind to be judge of poetry; and if in the painting the movements are appropriate {70} to the mental attributes of the figures which is are engaged in any kind of action, there is no doubt that the deaf man will understand the action and intentions of the figures, but the blind man will never understand what the poet

shows, and what constitutes the glory of the poetry; since one of the noblest functions of its art is to describe the deeds and the subjects of stories, and adorned and delectable places with transparent waters in which the green recesses of their course can be seen as the waves disport themselves over meadows and fine pebbles, and the plants which are mingled with them, and the gliding fishes, and similar descriptions, which might just as well be made to a stone as to a man born blind, since he has never seen that which composes the beauty of the world, that is, light, darkness, colour, body, shape, place, distance, propinquity, motion and rest, which are the ten ornaments of nature.

But the deaf man, lacking the less noble sense, although he has at the same time lost the gift of speech, since never having heard words spoken he never has been able to learn any language, will nevertheless perfectly understand every attribute of the human body better than a man who can speak and hear; and likewise he will know the works of painters and what is represented in them, and the action which is appropriate to such figures.

{71}

[Sidenote: Painting is Mute Poetry]

16.

Painting is mute poetry, and poetry is blind painting, and both imitate

nature to the best of their powers, and both can demonstrate moral principles, as Apelles did in his Calumny. And since painting ministers to the most noble of the senses, the eye, a harmonious proportion ensues from it, that is to say, that just as from the concord of many diverse voices at the same moment there ensues a well-proportioned harmony which will please the sense of hearing to such an extent that the listeners in dizzy admiration are like men half ravished of their senses, still greater will be the effect of the beautiful proportions of a celestial face in a picture from whose proportions a harmonious concord will ensue, which delights the eye in one moment, just as music delights the ear. And if this harmonious beauty is shown to one who is the lover of the woman from whom such great beauty has been copied, he will most certainly be struck dizzy with admiration and incomparable joy superior to that afforded by all the other senses.

But with regard to poetry, which in order to afford the representation of a perfect beauty is obliged to describe each separate part in detail,--a representation which in painting produces the harmony described above,--no further charm is produced than would occur in music if each voice {72} were to be heard separately at various intervals of time, whence no concord would ensue; just as if we wished to show a countenance bit by bit, always covering up the parts already shown, forgetfulness would prevent the production of any harmonious concord, since the eye could not apprehend the parts with its visual faculty at the same moment. The same thing occurs in the beauty of any object created by the poet, for as its parts are related separately, at

separate times the memory receives no harmony from it.

[Sidenote: The Impression of Painting]

17.

Painting reveals itself immediately to thee with the semblance given it by its creator, and affords to the chief of the senses as great a delight as any object created by nature. And the poet in this case reveals the same objects to the brain by the channel of the hearing, the inferior sense, and affords the eye no more pleasure than it derives from anything which is related. Now consider what a difference there is between hearing the recital of a thing which in the course of time gives pleasure to the eye, and perceiving it with the same velocity with which we apprehend the works of nature.

And in addition to the fact that a long interval of time is necessary to read the works of the poets, it often occurs that they are not understood, and it is necessary to make diverse {73} comments on them, and it is exceedingly rare that the commentators are agreed as to the meaning of the poet; and often the readers peruse but a small portion of their works, owing to lack of time. But the works of the painter are immediately understood by those who behold them.

18.

Painting manifests its essence to thee in an instant of time,--its essence by the visual faculty, the very means by which the perception apprehends natural objects, and in the same duration of time,--and in this space of time the sense-satisfying harmony of the proportion of the parts composing the whole is formed. And poetry apprehends the same things, but by a sense inferior to that of the eyesight, which bears the images of the objects named to the perception with greater confusion and less speed. Not in such wise acts the eye (the true intermediary between the object and the perception), for it immediately communicates the true semblance and image of what is represented before it with the greatest accuracy; whence that proportion arises called harmony, which with sweet concord delights the sense in the same way as the harmony of diverse voices delights the ear; and this harmony is less worthy than that which delights the eye, because for every part of it that is born a part dies, and it dies as fast as it is born. This {74} cannot occur in the case of the eye; because if thou presentest a beautiful living mortal to the eye, composed of a harmony of fair limbs, its beauty is not so transient nor so quickly destroyed as that of music; on the contrary it has permanent duration, and allows thee to behold and consider it; and it is not reborn as in the case of music which is played many times over, nor will it weary thee: on the contrary, thou becomest enamoured with it, and the result it produces is that all the senses, together with the eye, would wish to possess it, and it seems that they would wish to compete with the eye: it appears that the mouth desires it for itself, if the mouth can be considered as a sense; the ear takes pleasure in hearing its beauty;

the sense of touch would like to penetrate into all its pores; the nose also would like to receive the air it exhales.

Time in a few years destroys this harmony, but this does not occur in the case of beauty depicted by the painter, because time preserves it for long; and the eye, as far as its function is concerned, receives as much pleasure from the depicted as from the living beauty; touch alone is lacking to the painted beauty,--touch, which is the elder brother of sight; which after it has attained its purpose does not prevent the reason from considering the divine beauty. And in this case the picture copied from the living beauty acts for the greater part as a substitute; and the {75} description of the poet cannot accomplish this.--the poet who is now set up as a rival to the painter, but does not perceive that time sets a division between the words in which he describes the various parts of the beauty, and that forgetfulness intervenes and divides the proportions which he cannot name without great prolixity; he cannot compose the harmonious concord which is formed of divine proportions. And on this account beauty cannot be described in the same space of time in which a painted beauty can be seen, and it is a sin against nature to attempt to transmit by the ear that which should be transmitted by the eye.

What prompts thee, O man, to abandon thy habitations in the city, to leave thy parents and friends, and to seek rural spots in the mountains and valleys, if it be not the natural beauty of the world, which, if thou reflectest, thou dost enjoy solely by means of the sense of sight? And if the poet wishes to be called a painter in this connection also,

why didst thou not take the descriptions of places made by the poet and remain at home without exposing thyself to the heat of the sun? Oh! would not this have been more profitable and less fatiguing to thee, since this can be done in the cool without motion and danger of illness? But the soul could not enjoy the benefit of the eyes, the windows of its dwelling, and it could not note the character of joyous {76} places; it could not see the shady valleys watered by the sportiveness of the winding rivers; it could not see the various flowers, which with their colours make a harmony for the eye, and all the other objects which the eye can apprehend. But if the painter in the cold and rigorous season of winter can evoke for thee the landscapes, variegated and otherwise, in which thou didst experience thy happiness; if near some fountain thou canst see thyself, a lover with thy beloved, in the flowery fields, under the soft shadow of the budding boughs, wilt thou not experience a greater pleasure than in hearing the same effect described by the poet?

Here the poet answers, admitting these arguments; but he maintains that he surpasses the painter, because he causes men to speak and reason in diverse fictions, in which he invents things which do not exist, and that he will incite men to take arms, and describe the heavens, the stars, nature, and the arts and everything.

To which we reply that none of these things of which he speaks is his true profession; but if he wishes to speak and make orations, it can be shown that he is surpassed by the orator in this province; and if he speaks of astrology, that he has stolen the subject of the astrologer;

and in the case of philosophy, of the philosopher; and that in reality poetry has no true position and merits no more consideration than a shopkeeper {77} who collects goods made by various workmen. As soon as the poet ceases to represent by means of words the phenomena of nature, he then ceases to act as a painter, because if the poet leaves such representation and describes the flowery and persuasive speech of him to whom he wishes to give speech, he then becomes an orator, and neither a poet nor a painter; and if he speaks of the heavens he becomes an astrologer, and a philosopher and a theologian if he discourses of nature or God; but if he returns to the description of any object he would rival the painter, if with words he could satisfy the eye as the painter does.

But the spirit of the science of painting deals with all works, human as well as divine, which are terminated by their surfaces, that is, the lines of the limits of bodies by means of which the sculptor is required to achieve perfection in his art. She with her fundamental rules, i.e. drawing, teaches the architect how to work so that his building may be pleasant to the eye; she teaches the makers of diverse vases, the goldsmiths, weavers, embroiderers; she has found the characters with which diverse languages find expression; she has given symbols to the mathematicians; she has taught geometry its figures, and instructed the astrologers, the makers of machines and engineers.

[Sidenote: Poet and Painter]

19.

The poet says that his science consists of {78} invention and rhythm, and this is the simple body of poetry, invention as regards the subject matter and rhythm as regards the verse, which he afterwards clothes with all the sciences. To which the painter rejoins that he is governed by the same necessities in the science of painting, that is to say, invention and measure (fancy as regards the subject matter which he must invent, and measure as regards the matters painted), so that they may be in proportion, but that he does not make use of three sciences; on the contrary it is rather the other sciences that make use of painting, as, for instance, astrology, which effects nothing without the aid of perspective, the principal link of painting,--that is, mathematical astronomy and not fallacious astrology (let those who by reason of the existence of fools make a profession of it, forgive me). The poet says he describes an object, that he represents another full of beautiful allegory; the painter says he is capable of doing the same, and in this respect he is also a poet. And if the poet says he can incite men to love, which is the most important fact among every kind of animal, the painter can do the same, all the more so because he presents the lover with the image of his beloved; and the lover often does with it what he would not do with the writer's delineation of the same charms, i.e. talk with it and kiss it; so great is the painter's influence on the minds of men that he incites them to love and {79} become enamoured of a picture which does not represent any living woman.

And if the poet pleases the sense by means of the ear, the painter does

so by the eye, which is the superior sense. I will enlarge no further on this theme save to say that if a good painter were to represent the fury of a battle, and if the poet were to describe one, and both representations were put before the public together, you will see before which of the two most of the spectators will stop, to which of the two they will pay most attention, which of the two will be the most praised and give the greater satisfaction. Without any doubt, the painting, being infinitely the most beautiful and useful, will please the most. Write the name of God in some spot, and set up His image opposite, and you will see which will be the most reverenced. While painting embraces in itself all the forms of nature, you have nothing save words, which are not universal, like forms. If you have the effects of the representation, we have the representation of the effects. Take a poet who describes the charms of a woman to her lover, and a painter who represents her, and you will see whither nature leads the enamoured critic. Certainly the proof should rest on the verdict of experience. You have classed painting among the mechanical arts, but, truly, if painters were as apt at praising their own works in writing as you are, it would not lie under the stigma {80} of so unhonoured an name. If you call it mechanical because it is by manual work and that the hand represents the conception of the imagination, you writers put down with the pen the conceptions of your mind. And if you say that it is mechanical because it is done for money, who is more guilty of this error--if error it can be called--than you? If you lecture in the schools, do you not go to whomsoever rewards you most? Do you perform any work without some pay? Although I do not say this to blame such opinions, because all labour expects its reward; and if a

poet were to say: "I will devise with my fancy a work which shall be pregnant with meaning," the painter can do the same, as Apelles did when he painted The Calumny.

[Sidenote: King Matthias & the Poet]

20.

On the birthday of King Matthias, a poet brought him a work made in praise of the royal birthday for the benefit of the world, and a painter presented him with a portrait of his lady-love. The king immediately shut the book of the poet and turned to the picture, and remained gazing on it with profound admiration. Then the poet, greatly slighted, said: "O king, read, read, and thou wilt hear something of far greater substance than a dumb picture!" Then the king, hearing himself blamed for contemplating a mute object, said: "O poet, be silent, thou knowest not what thou {81} sayest; this picture gratifies a nobler sense than thy work, which is for the blind. Give me an object which I can see and touch and not only hear, and blame not my choice in having placed thy work beneath my elbow, while I hold the work of the painter with both my hands before my eyes, because my very hands have chosen to serve a worthier sense than that of hearing.

"And as for my self I consider that the same proportion exists between the art of the painter and that of the poet as that which exists between the two senses on which they respectively depend.

"Knowest thou not that our soul is composed of harmony, and harmony can only be begotten in the moments when the proportions of objects are simultaneously visible and audible? Seest thou not that in thine art there is no harmony created in a moment, and that, on the contrary, each part follows from the other in succession, and the second is not born before its predecessor dies. For this reason I consider thy creation to be considerably inferior to that of the painter, simply because no harmonious concord ensues from it. It does not satisfy the mind of the spectator or the listener, as the harmony of the perfect features which compose the divine beauty of this face which is before me; for the features united all together simultaneously afford me a pleasure which I consider to be unsurpassed by any other thing on the earth which is made by man."

{82}

[Sidenote: Value of the Visible Universe]

21.

There is no one so foolish who if offered the choice between everlasting blindness and deafness would not immediately elect to lose both his hearing and sense of smell rather than to be blind. Since he who loves his sight is deprived of the beauty of the world and all created things, and the deaf man loves only the sound made by the percussion of the air, which is an insignificant thing in the world.

Thou sayest that science increases in nobility in proportion as the subjects with which it deals are more elevated, and, for this reason, a false rendering of the being of God is better than the portrayal of a less worthy object; and on this account we will say that painting, which deals alone with the works of God, is worth more than poetry, which deals solely with the lying imaginings of human devices.

[Sidenote: Poet and Painter]

22.

Thou sayest, O painter, that worship is paid to thy work, but impute not this power to thyself, but to the subject which such a picture represents. Here the painter makes answer: O thou poet, who sayest that thou also art an imitator, why dost thou not represent with thy words objects of such a nature that thy writings which contain these words may be worshipped also? But nature has favoured the painter more than the poet, {83} and it is fair that the works of the more greatly favoured one should be more honoured than those of the less favoured one. Therefore let us praise him who with words satisfies the hearing, and him who by painting affords perfect content to the eyes; but let the praise given to the worker in words be less, inasmuch as they are accidental and created by a less worthy author than the works of nature of which the painter is the imitator. And the existence of these works is confined within the forms of their surfaces.

23.

Since we have concluded that the utmost extent of the comprehension of poetry is for the blind, and that of painting for the deaf, we will say that the value of painting exceeds that of poetry in proportion as painting gratifies a nobler sense than poetry does, and this nobility has been proved to be equal to that of three other senses, because we elect to lose our sense of hearing, smell and touch rather than our eyesight. For he who loses his sight is deprived of the beauty of the universe, and is like to one who is confined during his lifetime in a tomb, in which he enjoys life and motion.

Now seest thou not that the eye comprehends the beauty of the whole world? It is the head of astrology; it creates cosmography; it gives counsel and correction to all the human arts; it impels {84} men to seek diverse parts of the world; it is the principle of mathematics; its science is most certain; it has measured the height and the magnitude of the stars; it has discovered the elements and their abodes; it has been able to predict the events of the future, owing to the course of the stars; it has begotten architecture and perspective and divine painting. O most excellent above all the things created by God! What praise is there which can express thy nobility? What peoples, what tongues, are they who can perfectly describe thy true working? It is the window of the human body, through which the soul gazes and feasts on the beauty of the world; by reason of it the soul

is content with its human prison, and without it this human prison is its torment; and by means of it human diligence has discovered fire by which the eye wins back what the darkness has stolen from it. It has adorned nature with agriculture and pleasant gardens. But what need is there for me to indulge in long and elevated discourse? What thing is there which acts not by reason of the eye? It impels men from the East to the West; it has discovered navigation; and in this it excels nature, because the simple products of the earth are finite and the works which the eye makes over to the hands are infinite, as the painter shows in his portrayal of countless forms of animals, herbs, plants and places.

{85}

[Sidenote: Music the Sister of Painting]

24.

Music should be given no other name than the sister of painting, inasmuch as it is subject to the hearing,--a sense inferior to the eye,--and it produces harmony by the unison of its proportioned parts, which are brought into operation at the same moment and are constrained to come to life and die in one or more harmonic times; and time is, as it were, the circumference of the parts which constitute the harmony, in the same way as the outline constitutes the circumference of limbs whence human beauty emanates.

But painting excels and lords over music because it does not die as soon as it is born, as occurs with music, the less fortunate; on the contrary, it continues to exist and reveals itself to be what it is, a single surface. O marvellous science, thou givest lasting life to the perished beauty of mortals, which are thus made more enduring than the works of nature, for these undergo forever the changes of time, and time leads them to inevitable old age! And this science is to divine nature as its works are to the works of nature, and on this account it is worshipped.

[Sidenote: Painting & Music]

25.

The most worthy thing is that which satisfies the most worthy sense; therefore painting, which satisfies the sense of sight, is more worthy than {86} music, which merely satisfies the hearing. The most worthy thing is that which endures longest; therefore music, which is continually dying as soon as it is born, is less worthy than painting, which lasts eternally with the colours of enamel. The most excellent thing is that which is the most universal and contains the greatest variety of things; therefore painting must be set above all other arts, because it contains all the forms which exist and also those which are not in nature, and it should be glorified and exalted more than music, which deals with the voice only.

With it images are made to the gods; around it divine worship is conducted, of which music is a subservient ornament; by means of it pictures are given to lovers of their beloved; by it the beauties are preserved which time, and nature the mother, render fitful; by it we retain the images of famous men. And if thou wert to say that by committing music to writing you render it eternal, we do the same with letters.

Therefore, since thou hast included music among the liberal arts, thou must either exclude it, or include the art of letters. And if thou wast to say: Painting is used by base men, in the same way is music spoilt by him who knows it not. If thou sayest that sciences which are not mechanical are mental, I will answer that painting is mental. And just as music and geometry deal with the proportions of continuous quantities, and {87} arithmetic deals with discontinuous quantities, painting deals with all quantities and the qualities of the proportions of shadows, lights and distances, in its perspective.

[Sidenote: Painter and Musician]

26.

The musician says that his art can be compared with that of the painter because by the art of the painter a body of many members is composed, and the spectator apprehends its grace in as many harmonious rhythms ... as there are times in which it lives and dies; and by these rhythms

... its grace plays with the soul, which dwells in the body of the spectator. But the painter replies that the body composed of human limbs does not afford the delectable harmonious rhythms in which beauty must live and die, but renders it permanent for many years, and is of such great excellence that it preserves the life of this harmony of concordant limbs which nature with all her force could not preserve.

How many pictures have preserved the semblance of divine beauty of which time or death had in a brief space destroyed the living example: and the work of the painter has become more honoured than that of nature, his master!

If thou, O musician, sayest that painting is mechanical because it is wrought by the work of the hands, music is wrought by the mouth, but {88} not by the tasting faculties of the mouth; just and as the hand is employed indeed in the case of painting, but not for its faculties of touch. Words are less worthy than actions. But thou, writer of science, dost thou not copy with thy hand, and write what is in thy mind, as the painter does? And if thou wast to say that music is formed of proportion, by proportion have I wrought painting, as thou shalt see.

[Sidenote: Poet Painter and Musician]

27.

There is the same difference between the representation of the embodied works of the painter and those of the poet as there is between complete and dismembered bodies, because the poet in describing the beauty or the ugliness of any body reveals it to you limb by limb and at diverse times, and the painter shows the whole at the same time. The poet cannot express in words the true likeness of the limbs which compose a whole, as can the painter, who places it before you with the truth of nature. And the same thing befalls the poet as the musician, who sings by himself a song composed for four singers; and he sings the treble first, then the tenor, then the alto and then the bass, whence there results no grace of harmonious concord such as harmonious rhythms produce. And the poet is like a beautiful countenance which reveals itself to you feature by feature, that by so doing you may never be {89} satisfied by its beauty, which consists of the divine proportion of the limbs united one with another, and these compose of themselves and at one time the divine harmony of this union of limbs, and often deprives the gazer of his liberty. Music, again, by its harmonious rhythm, produces the sweet melodies formed by its various voices, and their harmonious division is lacking to the poet; and although poetry enters into the abode of the intellect by the channel of the hearing, as does music, the poet cannot describe the harmony of music, because it is not in his power to say various things in one and the same moment as can the harmonious concord of painting, which is composed of various members which exist simultaneously, and the beauty of these parts is apprehended at the same time, individually and collectively,--collectively with regard to the whole, individually with regard to the component parts of which the whole is formed; and for

this reason the poet is, as far as the representation of bodily things is concerned, greatly inferior to the painter, and as far as invisible things are concerned he is far behind the musician. But if the poet borrows the aid of the other sciences, he can appear at the fair like the other merchants, bearers of divers goods made by many artificers; and the poet does this when he borrows the science of others, such as that of the orator, the philosopher, the astrologer, the cosmographer and {90} the like; and these sciences are altogether alien to the poet. Therefore he is an agent who brings together diverse persons in order to strike a bargain; and if you wish to know the true function of the poet, you will find that he is no other than an assembler of goods stolen from other sciences, with which he makes a deceptive mixture, or more honestly said, a fictitious mixture. And with regard to this fiction the poet is free to compete with the painter, since it constitutes the least part of the painting.

28.

The painter emulates and competes with nature.

[Sidenote: Painting a second Creation]

29.

He who blames painting blames nature, because the works of the painter

represent the works of nature, and for this reason he who blames in this fashion lacks feeling.

[Sidenote: The Painter Lord of All]

30.

If the painter wishes to see beautiful things which will enchant him he is able to beget them; if he wishes to see monstrous things which terrify, or grotesque and laughable things, or truly piteous things, he can dispose of all these; if he wishes to evoke places and deserts, shady or dark retreats in the hot season, he represents them, and likewise warm places in the cold season. If he wishes valleys, if he wishes to descry a great {91} plain from the high summits of the mountains, and if he wishes after this to see the horizon of the sea, he can do so; and from the low valleys he can gaze on the high mountains, or from the high mountains he can scan the low valleys and shores; and in truth all quantities of things that exist in the universe, either real or imaginary, he has first in his mind and then in his hands; and these things are of so great excellence that they beget a harmonious concord in one glance, as do the things of nature.

31.

We can safely say that those people are under a delusion who call that

painter a good master who can only draw well a head or a figure. Certainly there is no great merit if, after studying a single thing during a whole lifetime, you attain to a certain degree of perfection in it. But knowing, as we do, that painting includes and comprehends all the works produced by nature, or brought about by the fortuitous action of man, and in fact everything that the eye can see, he seems to me to be a poor master who can only do one thing well. Now seest thou not how many and diverse acts are performed by men? Seest thou not how many various animals there are, and likewise trees, plants and flowers; what a variety of mountainous or level places, fountains, rivers, cities, public and private buildings, {92} instruments suitable for human use; how many diverse costumes and ornaments and arts? All these things should be considered of equal effect and value when used by the man who can be called a good painter.

[Sidenote: Painting and Nature]

32.

If you despise painting, which is the only imitator of the visible works of nature, you will certainly despise a subtle invention which with philosophy and subtle speculation apprehends the qualities of forms, backgrounds, places, plants, animals, herbs and flowers, which are surrounded by light and shade. And truly this is knowledge and the legitimate offspring of nature, because painting is begotten by nature. But to be correct, we will say that it is the grandchild of nature,

because all visible things are begotten by nature, and these her children have begotten painting. Therefore we shall rightly say that painting is the grandchild of nature and related to God.

33.

Were a master to boast that he could remember all the forms and effects of nature, he would certainly appear to me to be graced with great ignorance, inasmuch as these effects are infinite and our memory is not sufficiently capacious to retain them. Therefore, O painter, beware lest in thee the lust of gain should overcome the honour of thy art, for the acquisition of honour is a much {93} greater thing than the glory of wealth. Thus, for this and for other reasons which could be given, first strive in drawing to express to the eye in a manifest shape the idea and the fancy originally devised by thy imagination; then go on adding or removing until thou art satisfied; then arrange men as models, clothed or nude, according to the intention of thy work, and see that, as regards dimension and size, in accordance with perspective there is no portion of the work which is not in harmony with reason and natural effects, and this will be the way to win honour in thy art.

[Sidenote: Painting & Sculpture]

34.

I have myself practised the art of sculpture as well as that of painting, and I have practised both arts in the same degree. I think, therefore, that I can give an impartial opinion as to which of the two is the most difficult: the most perfect requires the greater talent, and is to be preferred.

In the first place sculpture requires a certain light, that is to say, a light from above, and painting carries everywhere with it its light and shade; sculpture owes its importance to light and shade. The sculptor is aided in this by the relief which is inherent in sculpture, and the painter places the light and shade, by the accidental quality of his art, in the places where nature would naturally produce it. The sculptor cannot diversify his work by the various colours of objects; painting {94} is complete in every respect. The perspective of the sculptor appears to be altogether untrue; that of the painter can give the idea of a distance of a hundred miles beyond the picture. The sculptors have no aerial perspective; they can neither represent transparent bodies nor reflections, nor bodies as lustrous as mirrors, and other translucent objects, neither mists nor dark skies, nor an infinity of objects which it would be tedious to enumerate. The advantage [of sculpture] is that it is provided with a better defence against the ravages of time, although a picture painted on thick copper and covered over with white enamel, painted with enamel colours and then put in the fire again and baked, is equally resistant. Such a work as far as permanence is concerned exceeds sculpture. They may say that where an error is made it is not easy to correct it. It is poor

reasoning to try and prove that the irremediability of an oversight renders the work more honourable. But I say to you that it will prove more difficult to mend the mind of the master who commits such errors than to repair the work he has spoilt. We know well that an experienced and competent artist will not make mistakes of this kind; on the contrary, acting on sound rules, he will remove so little at a time that his work will be brought to a successful close. Again, the sculptor, if he works in clay or wax, can remove and add, and when the work is finished it can be easily {95} cast in bronze, and this is the last and most permanent operation of sculpture, inasmuch as that which is merely of marble is liable to destruction, but this is not the case with bronze. Therefore the picture painted on copper, which with the methods of painting can be reduced or added to, is like bronze, which when it was in the state of a wax model could be reduced or added to. And if sculpture in bronze is durable, this copper and enamel work is more imperishable still; and while the bronze remains black and ugly, this is full of various and delectable colours of infinite variety, as we have described above. If you wish to confine the discussion to painting on panel I am content to pronounce between it and sculpture, saying, that painting is the more beautiful, the more imaginative and the more copious, and that sculpture is more durable, but has no other advantage. Sculpture with little labour shows what in painting seems to be a miraculous thing to do: to make impalpable objects appear palpable, to give the semblance of relief to flat objects, and distance to objects that are near. In fact painting is full of infinite resources of which sculpture cannot dispose.

35.

Sculpture is not a science, but a mechanical art, because it causes the brow of the artist who practises it to sweat, and wearies his body; and for {96} such an artist the simple proportions of the limbs, and the nature of movements and attitudes, are all that is essential, and there it ends, and shows to the eye what it is, and it does not cause the spectator to wonder at its nature, as painting does, which in a plane by its science shows vast countries and far-off horizons.

36.

The only difference between painting and sculpture is that the sculptor accomplishes his work with the greater bodily fatigue, and the painter with the greater mental fatigue. This is proved by the fact that the sculptor in practising his art is obliged to exert his arms and to strike and shatter the marble or other stone, which remains over and above what is needed for the figure which it contains, by manual exercise, accompanied often by profuse sweating, mingled with dust and transforming itself into dirt; and his face is plastered and powdered with the dust of the marble, so that he has the appearance of a baker, and he is covered with minute chips, and it appears as if snow had fallen on him, and his dwelling is dirty and full of chips and the dust of stone.

The contrary occurs in the case of the painter,--we are speaking of excellent painters and sculptors,--since the painter with great leisure sits before his work well clothed, and handles the light brush dipped in lovely colours. He wears {97} what garments he pleases; his dwelling is full of beautiful pictures, and it is clean; sometimes he has music or readers of diverse and pleasant works, which, without any noise of hammers or other confused sounds, are heard with great pleasure.

37.

There can be no comparison between the talent, art and theory of painting and that of sculpture, which leaves perspective out of account,--perspective which is produced by the quality of the material and not of the artist. And if the sculptor says that he cannot restore the superabundant substance which has once been removed from his work, I answer that he who removes too much has but little understanding and is no master. Because if he has mastered the proportions he will not remove anything unnecessarily; therefore we will say that this disadvantage is inherent in the artist and not in the material. But I will not speak of such men, for they are spoilers of marble and not artists.

Artists do not trust to the judgement of the eye, because it is always deceptive, as is proved by him who wishes to divide a line into two equal parts by the eye, and is often deceived in the experiment;

wherefore the good judges always fear--a fear which is not shared by the ignorant--to trust to their own judgement, and on this account they proceed by continually checking the {98} height, thickness and breadth of each part, and by so doing accomplish no more than their duty. But painting is marvellously devised of most subtle analyses, of which sculpture is altogether devoid, since its range is of the narrowest.
To the sculptor who says that his science is more lasting than that of painting, I answer that this permanence is due to the quality of the material and not to that of the sculptor, and the sculptor has no right to give himself the credit for it, but he should let it redound to nature which created the material.

38.

Painting has a wider intellectual range and is more wonderful and greater as regards its artistic resources than sculpture, because the painter is by necessity constrained to amalgamate his mind with the very mind of nature and to be the interpreter between nature and art, making with art a commentary on the causes of nature's manifestations which are the inevitable result of its laws; and showing in what way the likenesses of objects which surround the eye correspond with the true images of the pupil of the eye, and showing among objects of equal size which of them will appear more or less dark, or more or less clear; and among objects equally low which of them will appear more or less low; or among those of the same height which of them will appear more or less high; or among objects of equal size {99} placed at

various distances one from the other, why some will appear more clearly than others. And this art embraces and comprehends within itself all visible things, which sculpture in its poverty cannot do: that is, the colours of all objects and their gradations; it represents transparent objects, and the sculptor will show thee natural objects without the painter's devices; the painter will show thee various distances with the gradations of colour producing interposition of the air between the objects and the eye; he will show thee the mists through which the character of objects is with difficulty descried; the rains which clouded mountains and valleys bring with them; the dust which is inherent to and follows the contention between these forces; the rivers which are great or small in volume; the fishes disporting themselves on the surface or at the bottom of these waters; the polished pebbles of various colours which are collected on the washed sands at bottom of rivers surrounded by floating plants beneath the surface of the water; the stars at diverse heights above us; and in the same manner other innumerable effects to which sculpture cannot attain.

39.

Sculpture lacks the beauty of colours, the perspective of colours; it lacks perspective and it confuses the limits of objects remote from the {100} eye, inasmuch as it represents the limits of objects that are near in the same way as those of distant objects; it does not represent the air which, interposed between the eye and the remote object, conceals that object but as the veils in draped figures, which reveal

the naked flesh beneath them; it cannot represent the small pebbles of various colours beneath the surface of the transparent waters.

[Sidenote: To the Painter]

40.

And thou, painter, who desirest to achieve the highest excellence in practice, understand that unless thou build it on the solid foundations of nature, thou shalt reap but scant honour and gain by thy work; and if thy foundation is sound, thy works shall be many and good, and bring great honour to thee, and be of great profit.

41.

When the work exceeds the ideal of the artist, the artist makes scant progress; and when the work falls short of his ideal it never ceases to improve, unless avarice be an obstacle.

42.

He is a poor disciple who does not surpass his master.

[Sidenote: Counsels]

43.

He is a poor master whose work is exalted in his {101} own opinion, and he is on the road to perfection in art whose work falls short of his ideal.

44.

Small rooms or dwellings help the mind to concentrate itself; large rooms are a source of distraction.

45.

The painter should be solitary, and take note of what he sees and reason with himself, making a choice of the more excellent details of the character of any object he sees; he should be like unto the mirror, which takes the colours of the objects it reflects. And this proceeding will seem to him to be a second nature.

[Sidenote: The Painter in his Studio]

46.

In order that the favourable disposition of the mind may not be injured by that of the body, the painter or the draughtsman should be solitary, and especially when he is occupied with those speculations and thoughts which continually rise up before the eye, and afford materials to be treasured by the memory.

If thou art alone, thou wilt belong to thyself only: if thou hast but one companion, thou wilt only half belong to thyself, and ever less in proportion to the indiscretion of his conduct; and if thou hast many companions, thou wilt encounter {102} the same disadvantage. And if thou shouldst say: "I will follow my own inclination, I will withdraw into seclusion in order the better to study the forms of natural objects"--I say thou wilt with difficulty be able to do this, because thou wilt not be able to refrain from constantly listening to their chatter; and, not being able to serve two masters, thou wilt play the part of a companion ill, and still worse will be the evil effect on thy studies in art. And if thou sayest: "I will withdraw myself, so that their words cannot reach and disturb me"--I, with regard to this, say thou wilt be regarded as a madman; but seest thou not that by so doing thou wilt be alone also?

[Sidenote: Advice to the Painter]

47.

The mind of the painter must be like unto a mirror, which ever takes the colour of the object it reflects, and contains as many images as there are objects before it. Therefore realize, O painter, that thou canst not succeed unless thou art the universal master of imitating by thy art every variety of nature's forms, and this thou canst not do save by perceiving them and retaining them in thy mind; wherefore when thou walkest in the country let thy mind play on various objects, observe now this thing and now that thing, making a store of various objects selected and chosen from those of lesser value. And thou shalt not do as some painters, who, when weary of plying {103} their fancy, dismiss their work from their mind and take exercise in walking for relaxation, but retain fatigue in the mind, which, though they see various objects, does not apprehend them, but often when they meet friends and relations and are saluted by them, they are no more conscious of them than if they had met empty air.

[Sidenote: Precepts]

48.

And thou, O painter, seek to bring about that thy works may attract those who gaze upon them and arrest them with great admiration and delight; and so that they may not attract and forthwith repel them, as the air does to him who in the night season leaps naked from his bed to gaze upon the cloudy and serene sky and forthwith is driven back by the cold, and returns to the bed whence he rose. But let thy works be like

the air which draws men from their beds in the hot season, and retains them to taste with delight the cool of the summer; and he who will do well by his art will not strive to be more skilful than learned, nor let greed get the better of glory. Seest thou not among human beauties that it is the beautiful faces which stop the passers-by, and not the richness of their ornaments? And this I say to thee who adornest thy figures with gold and other rich ornaments: Seest thou not splendid, youthful beauties, who diminish their excellence by the excess and elaboration of their {104} ornaments? Hast thou not seen women of the mountains dressed in rough and poor clothes richer in beauty than those who are adorned? Make no use of the affected arrangements and headdresses such as those adopted by loutish maids, who, by placing one lock of hair more on one side than the other, credit themselves with having committed a great enormity, and think that the bystanders will forget their own thoughts to talk of them alone, and to blame them. For such persons have always the looking-glass and the comb, and the wind, which ruffles elaborate headdresses, is their worst enemy. In thy heads let the hair sport with the wind thou depictest around youthful countenances, and adorn them gracefully with various turns, and do not as those who plaster their faces with gum and make the faces seem as if they were of glass. This is a human folly which is always on the increase, and the mariners do not satisfy it who bring arabic gums from the East, so as to prevent the smoothness of the hair from being ruffled by the wind,--but they pursue their investigations still further in this direction.

49.

I cannot but mention among these precepts a new means of study, which, although it may seem trivial and almost ridiculous, is nevertheless extremely useful in arousing the mind to {105} various inventions. It is as follows: when you look at walls mottled with various stains or stones made of diverse substances, if you have to invent some scene, you may discover on them the likeness of various countries, adorned with mountains, rivers, rocks, trees, plains, great valleys and hills in diverse arrangement; again, you may be able to see battles and figures in action and strange effects of physiognomy and costumes, and infinite objects which you could reduce to complete and harmonious forms. And the effect produced by these mottled walls is like that of the sound of bells, in the vibrating of which you may recognize any name or word you choose to imagine. I have seen blots in the clouds and in mottled walls which have stimulated me to the invention of various objects, and although the blots themselves were altogether devoid of perfection in any one of their parts, they lacked not perfection in their movement and circumstance.

50.

Obtain knowledge first, and then proceed to practice, which is born of knowledge.

[Sidenote: Theory and Practice]

51.

Knowledge is the captain, and practice the soldiers.

52.

The painter who draws by practice and by the {106} eye, without the guide of reason, is like the mirror, which reflects all the objects which are placed before it and knows not that they exist.

53.

Many will consider they can reasonably blame me by alleging that my proofs are contrary to the authority of many men held in great esteem by their inexperienced judgements: overlooking the fact that my works are solely and simply the offspring of experience, which is the veritable master.

54.

They who are enamoured of practice without knowledge are like the mariner who puts to sea in a vessel without rudder or compass, and who

navigates without a course. Practice should always be based on sound theory; perspective is the guide and the portal of theory, and without it nothing can be well done in the art of painting.

[Sidenote: Course of Study]

55.

The youth should first learn perspective, and then the measurements of every object; he should then copy from some good master to accustom himself to well-drawn forms, then from nature to acquire confirmation of the theories he has learnt; then he should study for a time the works of various masters, and finally attain the {107} habit of putting into practice and producing his art.

56.

Mathematics, such as appertain to painting, are necessary to the painter, also the absence of companions who are alien to his studies: his brain must be versatile and susceptible to the variety of objects which it encounters, and free from distracting cares. And if in the contemplation and definition of one subject a second subject intervenes,--as happens when the mind is filled with an object,--in such cases he must decide which of the two objects is the more difficult of definition, and pursue that one until he arrives at

perfect clearness of definition, and then turn to the definition of the other. And above all things his mind should be like the surface of the mirror, which shows as many colours as there are objects it reflects; and his companions should study in the same manner, and if such cannot be found he should meditate in solitude with himself, and he will not find more profitable company.

[Sidenote: Perspective & Mathematics]

57.

In the study of natural causes and reasons light affords the greatest pleasure to the student; among the great facts of mathematics the certainty of demonstration most signally elevates the mind of the student. Perspective must therefore be {108} placed at the head of all human study and discipline, in the field of which the radiant line is rendered complex by the methods of demonstration; in it resides the glory of physics as well as of mathematics, and it is adorned with flowers of both these sciences.

The laws of those sciences which are capable of extensive analysis I will confine in brief conclusions, and according to the nature of the material I will interweave mathematical demonstrations, at times deducing results from causes, and at times tracing causes by results. I will add to my conclusions some which are not contained in these, but which can be deduced from them, if the Lord, the Supreme Light,

illuminates me, so that I may treat of light.

[Sidenote: Of the Method of Learning]

58.

When you will have thoroughly mastered perspective and have learnt by heart the parts and forms of objects, strive when you go about to observe. Note and consider the circumstances and the actions or men, as they talk, dispute, laugh or fight together, and not only the behaviour of the men themselves, but that of the bystanders who separate them or look on at these things; and make a note of them, in this way, with slight marks in your little note-book. And you should always carry this note-book with you, and it should be of coloured paper, so that what you {109} write may not be rubbed out; but (when it is used up) change the old for a new one, since these things should not be rubbed out, but preserved with great care, because such is the infinity of the forms and circumstances of objects, that the memory is incapable of retaining them; wherefore keep these sketches as your guides and masters.

59.

These rules are only to be used in correcting the figures, since every man makes some mistakes in his first composition, and he who is not

aware of them cannot correct them; but thou being conscious of thine errors wilt correct thy work and amend errors where thou findest them, and take care not to fall into them again. But if thou attemptest to apply these rules in composition thou wilt never finish anything, and confusion will enter into thy work. Through these rules thou shalt acquire a free and sound judgement, since sound judgement and thorough understanding proceed from reason arising from sound rules, and sound rules are the offspring of sound experience, the common mother of all the sciences and arts. Hence if thou bearest in mind the precepts of my rules thou shalt be able, merely by thy corrected judgement, to judge and recognize any lack of proportion in a work, in perspective, in figures or anything else.

{110}

[Sidenote: Again of the Method of Learning]

60.

I say that the first thing which should be learnt is the mechanism of the limbs, and when this knowledge has been acquired their actions should come next, according to the external circumstances of man, and thirdly the composition of subjects, which should be taken from natural actions, made fortuitously according to circumstances; and pay attention to them in the streets and public places and fields, and note them with a brief indication of outlines; that is to say, for a head make an O, and for an arm a straight or a bent line, and the same for

the legs and body; and when thou returnest home work out these notes in a complete form. The adversary says that to acquire practice and to do a great deal of work, it is better that the first course of study should be employed in copying diverse compositions done on paper or on walls by various masters, and that thus rapidity of practice and a good method is acquired; to which I reply that this method will be good if it is based on works which are well composed by competent masters; and since such masters are so rare that but few of them are to be found, it is safer to go to nature, than to what to its deterioration is imitated from nature, and to fall into bad habits, since he who can go to the fountain does not go to the water-vessel.

{111}

[Sidenote: Counsel to the Painter]

61.

Every bough and every fruit is born above the insertion of its leaf, which serves it as a mother, giving it water from the rain and moisture from the dew which falls on it from above in the night, and often it shields them from the heat of the sun's rays. Therefore, O painter, who lackest such rules, be desirous, in order to escape the blame of those who know, of copying every one of thy objects from nature, and despise not study after the manner of those who work for gain.

[Sidenote: On Anatomy]

62.

And you who say that it would be better to see practical anatomy than drawings of it, would be right if it were possible to see all the things which are shown in such drawings in a single drawing, in which you, with all your skill, will not see nor obtain knowledge of more than a few veins; and to obtain true and complete knowledge of these veins I have destroyed more than ten human bodies, destroying all the other limbs, and removing, down to its minutest particles, the whole of the flesh which surrounds these veins, without letting them bleed save for the insensible bleeding of the capillary veins. And as one body did not suffice for so long a time I had to proceed with several bodies by degrees until I finished by acquiring perfect knowledge, and this I {112} repeated twice to see the differences. And if you have a love for such things you may be prevented by disgust, and if this does not prevent you, you may be prevented by fear of living at night in company with such corpses, which are cut up and flayed and fearful to see; and if this does not prevent, you may not have a sufficient mastery of drawing for such a demonstration, and if you have the necessary mastery of drawing, it may not be combined with the knowledge of perspective; and if it were you might lack the power of geometrical demonstration, and the calculation of forces, and of the strength of the muscles, and perhaps you will lack patience and consequently diligence. As to whether these qualities are to be found in me or not the hundred and twenty books I have composed will pronounce the verdict Yes or No.

Neither avarice nor negligence, but time has hindered me in these. Farewell.

[Sidenote: On Study]

63.

I have myself proved that it is useful when you are in bed in the dark to work with the imagination, summing up the external outlines of the forms previously studied or other noteworthy things apprehended by subtle speculation; and this is a laudable practice and useful in impressing objects on the memory.

{113}

[Sidenote: On judging Pictures]

64.

We are well aware that faults are more easily recognized in the works of others than in our own, and often in blaming the small faults of others thou wilt ignore great ones in thyself. And to avoid such ignorance see that in the first place thy perspective be sound, then acquire a complete knowledge of the measurements of man and other animals, and of good architecture; that is to say, as far as the forms

of buildings and other objects which are on the earth are concerned, and these are infinite in number. The more of them that thou knowest, the more praiseworthy will be thy work; and in cases where thou hast no experience do not refuse to draw them from nature.

[Sidenote: Advice to the Painter]

65.

Certainly while a man is painting he should not be loth to hear every opinion: since we know well that a man, although he be not a painter, is cognizant of the forms of another man, and will be able to judge them, whether he is hump-backed or has a shoulder too high or too low, or whether he has a large mouth or nose, or other defects. And if we know that men are capable of giving a correct judgement on the works of nature, much more ought we to acknowledge their competence to judge our faults, since we know how greatly a man may be deceived in {114} his own work; and if thou art not conscious of this in thyself, study it in others and thou wilt profit by their faults. Therefore be desirous to bear with patience the opinions of others, and consider and reflect well whether he who blames has good ground or not to blame thee, and if thou thinkest that he has, amend thy work; and if not, act as though thou hadst not heard him, and if he should be a man thou esteemest show him by reasoning where his mistake lies.

66.

There is a certain generation of painters who, owing to the scantiness of their studies, must needs live up to the beauty of gold and azure, and with supreme folly declare that they will not give good work for poor payment, and that they could do as well as others if they were well paid. Now consider, foolish people! Cannot such men reserve some good work and say, "This is costly; this is moderate, and this is cheap work," and show that they have work at every price?

[Sidenote: The Painter and the Mirror]

67.

When thou wishest to see whether thy picture corresponds entirely with the objects thou hast drawn from nature, take a mirror and let the living reality be reflected in it, and compare the reflection with thy picture, and consider well {115} whether the subject of the two images are in harmony one with another.

And above all thou shouldst take the mirror for thy master,--a flat mirror, since on its surface the objects in many respects have the same appearance as in painting. For thou seest that a painting done on a flat surface reveals objects which appear to be in relief, and the mirror consisting of a flat surface produces the same effect; the painting consists of one plane surface and the mirror likewise; the

picture is impalpable, in so far as that which appears to be round and prominent cannot be grasped by the hands, and it is the same with the mirror; the mirror and the painting reveal the semblance of objects surrounded by light and shade; each of them appears to be at a distance from its surface.

And if thou dost recognize that the mirror by means of outlines, lights and shadows gives relief to objects, and since thou hast in thy colours lights and shadows stronger than those of the mirror, there is no doubt that if thou composest thy picture well, it will also have the appearance of nature when it is reflected in a large mirror.

[Sidenote: The Painter's Mind]

68.

The mind of the painter should continually transmute the figure of the notable objects which come before him into so many discourses; and imprint them in his memory and classify them {116} and deduce rules from them, taking the place, the circumstances, the light and the shade into consideration.

[Sidenote: The Variety of Nature]

69.

I say that the universal proportions must be observed in the height of figures and not in their size, because in the admirable and marvellous things which appear in the works of nature there is no work of whatsoever character in which one detail is exactly similar to another; therefore, O thou imitator of nature, pay heed to the variety of features.

70.

Radically wrong is the procedure of some masters who are in the habit of repeating the same themes in the same episodes, and whose types of beauty are likewise the same, for in nature they are never repeated, so that if all the beauties of equal excellence were to come to life again they would compose a larger population than that now existing in our century, and since in the present century no one person is precisely similar to another, so would it be among the beauties mentioned above.

71.

You must depict your figures with gestures which will show what the figure has in his mind, otherwise your art will not be praiseworthy.

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[Sidenote: Mind and Expression]

72.

No figure will be admirable if the gesture which expresses the passion of the soul is not visible in it. The most admirable figure is that which best expresses the passion of its mind.

73.

The good painter has two principal things to depict: man and the purpose of his mind. The first is easy, the second is difficult, since he must do it by the gestures and movements of the limbs, and this is to be learnt from the dumb, who more than all other men excel in it.

[Sidenote: The Dumb Man guides the Painter]

74.

The figures of men have gestures which correspond to what they are doing, so that in seeing them you understand what they are thinking of and saying; and these will be learned well by him who will copy the gestures of the dumb, for they speak by the gestures of their hands, their eyes, their brows and their whole person, when they wish to

express the purpose of their mind. And do not mock me because I suggest a dumb teacher for the teaching of an art of which he is himself ignorant, because he will teach you better by his gestures than all the others with their words. And despise not such advice because they are the masters of gesture, and understand at a {118} distance what a man is talking of if he suits the actions of the hands to the words.

[Sidenote: Advice to the Painter]

75.

It is a great fault in painters to repeat the same movements, the same faces and manners of stuffs in one subject, and to let the greater part of his faces resemble their creator; and this has often been a source of wonder to me, for I have known some who in all their figures seem to have depicted themselves. And in the figures the actions and ways of the painter were visible. And if they are prompt in action and in their ways the figures are likewise prompt; and if the painter is pious, the figures with their twisted necks appear pious likewise, and if the painter is lazy the figures seem like laziness personified, and if the painter is deformed so are his figures, and if he is mad it is amply visible in figures of his subjects, which are devoid of intention and appear to be heedless of their action, some looking in one direction, some in another, as though they were dreaming; and therefore every manifestation in the picture corresponds to a peculiarity in the

painter. And as I have often thought over the cause of this fault, it seems to me that we must conclude that the spirit which directs and governs everybody is that which forms our intellect, or rather, it is our intellect itself. It has {119} devised the whole figure of man according as it has thought fit that it should be, either with long or a short and turned-up nose, and thus it has determined its height and figure; and so powerful is the intellect that it gives motion to the arms of the painter and causes him to reproduce himself, since it appears to the spirit that this is the true method of portraying man, and he that does otherwise is in error. And should this spirit find any one who resembles its body, which it has formed, it loves it and becomes enamoured with it, and for this reason many men fall in love and marry wives which resemble themselves, and often the children which are born of the issue resemble their parents.

76.

The painter should portray his figure according to the measurements of a natural body, which shall be of universal proper proportions; in addition to this he should measure himself and see in which part his own figure varies greatly or less from the aforesaid pattern of excellence, and when he has ascertained this he should try his utmost to avoid the defects which exist in his own person in the figures he portrays.

And know that thou must contend with all thy might against this fault

inasmuch as it is a defect which originated with the intellect; because the {120} spirit which governs thy body is that which is thine own intellect, and it is inclined to take pleasure in works similar to that which it accomplished in forming its body. And this is the reason that there is no woman, however ugly, who does not find a lover, unless she be monstrous. So remember to ascertain the defects of thy person and to avoid reproducing them in the figures thou dost compose.

77.

That painter who has coarse hands will portray the like in his works, and the same thing will occur in every limb unless he avoids this pitfall by long study. Therefore, O painter, look well on that part of thy person which is most ugly, and by thy study make ample reparation for it, because if thou art bestial, bestial and without intellect will be thy figures, and similarly both the good and ill which thou hast in thee will be partially visible in thy compositions.

78.

Men and words are already made, and thou, painter, who knowest not how to make thy figures move, art like the orator who knows not how to employ his words.

79.

The movements of men are as varied as the {121} circumstances which pass through their minds; and men will be more or less actuated by every circumstance in itself according as they are more or less powerful and according to age; because in the same circumstance an old man or a youth will make a different movement.

[Sidenote: Power of Expression in Painting]

80.

The imagination does not perceive such excellent things as the eye, because the eye receives the images or semblances from objects, and transmits them to the perception, and from thence to the brain; and there they are comprehended. But the imagination does not issue forth from the brain, with the exception of that part of it which is transmitted to the memory, and in the brain it remains and dies, if the thing imagined is not of high quality. And in this case poetry is formed in the mind or in the imagination of the poet, who depicts the same objects as the painter, and by reason of the work of his fancy he wishes to rival the painter, but in reality he is greatly inferior to him, as we have shown above. Therefore with regard to the work of fancy we will say that there is the same proportion between the art of painting and that of poetry as exists between the body and the shadow proceeding from it, and the proportion is still greater, inasmuch as

the shadow of such a body at least penetrates to {122} the brain through the eye, but the imaginative embodiment of such a body does not enter into the eye, but is born in the dark brain. Ah! What difference there is between imagining such a light in the darkness of the brain and seeing it in concrete shape set free from all darkness.

If thou, O poet, dost represent the battle and its bloodshed enveloped by the obscure and dark air, amid the smoke of the terrifying and deadly engines, together with the thick dust which darkens the air, and the flight in terror of wretches panic-stricken by horrible death; in this case the painter will surpass thee, because thy pen will be used up before thou hast scarcely begun to describe what the art of the painter represents for thee immediately. And thy tongue shall be parched with thirst and thy body worn out with weariness and hunger before thou canst show what the painter will reveal in an instant of time. And in this painting there lacks nothing save the soul of the things depicted, and every body is represented in its entirety as far as it is visible in one aspect; and it would be a long and most tedious matter for poetry to enumerate all the movements of each soldier in such a war, and the parts of their limbs and their ornaments which the finished picture places before you with great accuracy and brevity; and to such a representation nothing is wanting save the noise of the engines, and the cries of the terrifying victors, {123} and the screams and lamentations of those awe-stricken; neither again can the poet convey these things to the hearing.

We will say, therefore, that poetry is an art which is supremely potent

for the blind, and the painting has the same result on the deaf. Painting, therefore, excels poetry in proportion as the sense to which it ministers is the nobler. The only true function of the poet is to represent the words of people who talk among each other, and these alone he represents to the hearing as if they were natural, because they are natural in themselves and created by the human voice; and in all other respects he is surpassed by the painter. Still more, incomparably greater is the width of range of painting than that of speech, because the painter can accomplish an infinity of things which speech will not be able to name for want of the appropriate terms. And seest thou not that if the painter wishes to depict animals and devils in Hell with what richness of invention he proceeds?

And I once chanced to paint a picture which represented a divine subject, and it was bought by the lover of her whom it represented, and he wished to strip it of its divine character so as to be able to kiss it without offence. But finally his conscience overcame his desire and his lust and he was compelled to remove the picture from his house. Now go thou, poet, and describe a beautiful woman without giving the semblance of {124} the living thing, and with it arouse such desire in men! If thou sayest: I will describe then Hell and Paradise and other delights and terrors,--the painter will surpass thee, because he will set before thee things which in silence will [make thee] give utterance to such delight, and so terrify thee as to cause thee to wish to take flight. Painting stirs the senses more readily than poetry. And if thou sayest that by speech thou canst convulse a crowd with laughter or tears, I rejoin that it is not thou who stirrest the crowd, it is the

pathos of the orator, and his mirth. A painter once painted a picture which caused everybody who saw it to yawn, and this happened every time the eye fell on the picture, which represented a person yawning. Others have painted libidinous acts of such sensuality that they have incited those who gazed on them to similar acts, and poetry could not do this.

And if you write the description of certain deities the description will not be held in the same veneration as the picture of the Deity, because prayers and votive offerings will always be made to the picture, and many peoples from diverse countries and from across the Eastern seas will flock to it. And they will invoke the picture, and not the writing, for succour. Who is he who would not lose hearing, smell and touch rather than sight? Because he who loses his sight is like the man who is driven from the world, because {125} he sees neither it nor anything else any longer. And this life becomes the sister of Death.

[Sidenote: Landscapes]

81.

I have been to see a variety of cloud effects, and lately over Milan towards Lake Maggiore I saw a cloud in the form of a huge mountain full of fiery scales, because the rays of the sun, which was already reddening and close to the horizon, tinged the cloud with its own

colour. And this cloud attracted to it all the lesser clouds which were around it; and the great cloud did not move from its place, but on the contrary retained on its summit the light of the sun till an hour and a half after nightfall, such was its immense size; and about two hours after nightfall a great, an incredibly tremendous wind arose.

[Sidenote: Vegetation of a Hill]

82.

The grasses and plants will be paler in proportion as the soil which nourishes them is leaner and devoid of moisture; the earth is leaner and less rich in moisture on the rocks of which the mountains are formed. And the trees will be smaller and thinner in proportion as they are nearer to the summit of the mountain; and the soil is leaner in proportion as it is nearer to the said summit, and it is richer in proportion as it is nearer the hollow valleys. Therefore, O painter, {126} thou shalt represent rocks on the summits of the mountains--for they are composed of rocks--for the greater part devoid of soil, and the plants which grow there are small and lean and for the greater part withered and dry from lack of moisture, and the sandy and lean earth is seen through the faded plants; and the small plants are stunted and aged, exiguous in size, with short and thick boughs and few leaves; they cover for the greater part the rust-coloured and dry roots, and are interwoven in the strata and the fissures of the rugged rocks, and issue from trunks maimed by men or by the winds; and in many places you

see the rocks surmounting the summits of the high mountains, covered with a thin and faded moss; and in some places their true colour is laid bare and made visible owing to the percussion of the lightnings of Heaven, whose course is often obstructed to the damage of these rocks.

And in proportion as you descend towards the base of the mountains the plants are more vigorous and their boughs and foliage are denser; and their vegetation varied according to the various species of the plants of which such woods are composed, and their boughs are of diverse arrangement and diverse amplitude of foliage, various in shape and size; and some have straight boughs like the cypress, and some have widely scattered and spreading boughs like the oak and the chestnut tree, and the like; some have very {127} small leaves, others have a spare foliage like the juniper and the plane tree, and others; some plants born at the same time are divided by wide spaces, and others are united with no division of space between them.

[Sidenote: How to represent Night]

83.

That which is entirely devoid of light is all darkness; as the night is like this and you wish to represent a night subject, represent a great fire, so that the object which is nearest to the fire may be tinged with its colour, since the object which is nearest the fire will participate most in its nature. And as you will make the fire red, all

the objects which it illumines must be red also, and those which are farther off from the fire will be dyed to a greater extent by the dark colour of night. The figures which are between you and the fire appear dark from the obscurity of the night, not from the glow of the firelight, and those which are at the side are half dark and half ruddy, and those which are visible beyond the edge of the flames will be altogether lighted up by the red glow against a black background. As to their action, make those which are near shield themselves with their hands and cloaks against the intense heat with averted faces as though about to flee; with regard to those who are farther off, represent them chiefly in the act of raising their hands to their eyes, dazzled by the intense glare.

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[Sidenote: How to represent Storm]

84.

If you wish to represent well a storm, consider and weigh its effects when the wind, blowing across the surface of the sea and the earth, removes and carries with it those things which are not stable in the universal drift. And in order to represent this storm adequately, you must in the first place represent tattered and rent clouds rushing with the rushing wind, accompanied by sandy dust caught up from the seashores, and boughs and leaves torn up by the force and fury of the wind, and dispersed in the air with many other light objects. The

trees and the plants bent towards the earth almost seem as though they wished to follow the rushing wind, with their boughs wrenched from their natural direction and their foliage all disordered and distorted. Of the men who are to be seen, some are fallen and entangled in their clothes and almost unrecognizable on account of the dust, and those who remain standing may be behind some tree, clutching hold of it so that the wind may not tear them away; others, with their hands over their eyes on account of the dust, stoop towards the ground, with their clothes and hair streaming to the wind. The sea should be rough and tempestuous, and full of swirling eddies and foam among the high waves, and the wind hurls the spray through the tumultuous air like a thick and swathing mist. {129} As regards the ships that are there, you will depict some with torn sails and tattered shreds fluttering through the air with shattered rigging; some of the masts will be split and fallen, and the ship lying down and wrecked in the raging waves; some men will be shrieking and clinging to the remnants of the vessel. You will make the clouds driven by the fury of the winds and hurled against the high summits of the mountains, and eddying and torn like waves beaten against rocks; the air shall be terrible owing to deep darkness caused by the dust and the mist and the dense clouds.

[Sidenote: How to describe a Battle]

85.

In the first place you must represent the smoke of the artillery

mingled with the air, and the dust, and tossed up by the stampede of the horses and the combatants. And you must treat this confusion in this way: dust being an earthly thing has weight, and although owing to its fineness it is easily lifted up and mingled with the air, it nevertheless falls readily to the earth again, and it is its finest part which rises highest, therefore that part will be the least visible and will seem to be almost of the same colour as the air; the higher the smoke, which is mingled with the dusty air, rises towards a certain height, the more it will seem like a dark cloud, and at the summit the smoke will be more visible than the dust. {130} The smoke will assume a bluish colour, and the dust will retain its colour: this mixture of air, smoke and dust will seem much brighter on the side whence the light proceeds than on the opposite side; the more densely the combatants are enveloped in this confusion the less distinctly will their lights and shadows be visible. You must cast a glowing light on the countenances and the figures, the atmosphere, the musketeers and those who are near them, and this light diminishes in proportion as the distance between it and its cause increases; and the figures which are between you and the light will appear dark against a bright background, and their legs will be less visible in proportion as they are nearer to the earth, because the dust there is coarsest and thickest. And if you depict horses galloping beyond the crowd, make little clouds of dust, distant one from the other in proportion to the strides made by the horses, and the cloud which is farthest away from the horse will be the least visible; it must be high, scattered and thin, and the nearer clouds will be more conspicuous, smaller and denser. The air must be full of arrows falling in every direction: some flying upwards, some

falling, some on the level plane; and smoke should trail after the flight of the cannon-balls. The foremost figures should have their hair and eyebrows clotted with dust; dust must be on every flat portion they offer capable of retaining it. {131} The conquerors you should make as they charge, with their hair and the other light things appertaining to them streaming to the wind, their brows contracted and the limbs thrust forward inversely, that is, if the right foot is thrust forward the left arm must be thrust forward also. And if you portray a fallen man you must show where he has slipped and been dragged through the blood-stained mud, and around in the wet earth you must show the imprint of the feet of men and the hoofs of horses that have passed there. You will also represent a horse dragging its dead master, and in the wake of the body its track, as it has been dragged along through the dust and the mud; you must make the vanquished and beaten pale, their brows knit and the skin surmounting the brow furrowed with lines of pain. On the sides of the nose there must be wrinkles forming an arch from the nostrils to the eyes and terminating at the commencement of the latter; the nostrils should be drawn up, whence the wrinkles mentioned above; the arched lips show the upper row of teeth. The teeth should be apart, as with crying and lamentation. One hand shields the frightened eyes, the palm being held towards the enemy; the other [hand] rests on the ground to sustain the raised body. You shall portray others shouting in flight with their mouths wide open; you must depict many kinds of weapons lying at the feet of the {132} combatants, such as broken shields, lances, shattered swords and other similar objects; you must portray dead men, some half covered, some entirely covered, by the dust which is mingled with the spilt

blood and converted into red mud, and the blood is seen by its colour flowing in a sinuous stream from the body to the dust; others in their death-agony are grinding their teeth, rolling their eyes and clenching their fists against their bodies and their distorted legs. Some might be represented disarmed and thrown by the enemy, turning upon him with teeth and nails to wreak cruel and sharp revenge; a riderless horse might be represented charging with his mane streaming to the wind amidst the enemy, and inflicting great damage with his hoofs. Some maimed man might be seen fallen to the earth and protecting himself with his shield, while the enemy, bending over him, tries to kill him. You might show a number of men fallen together over a dead horse. You would see some of the conquerors leaving the battle and issuing from the crowd, clearing with their hands their eyes and cheeks of the mud made by the watering of their dust-bespattered eyes. You would see the reserves standing full of hope and caution, with brows alert, shading them with their hands and gazing through the thick and confused darkness, attentive to the orders of their captain; and likewise the captain, with his staff raised, is rushing towards these {133} reserves and points out to them the spot where they are needed; and you may add a river with horses charging into it and stirring up the water all round them into seething waves of mixed foam and water, which is spurted into the air and among the legs and bodies of the horses. And there must not be a level place that is not trampled with gory footsteps.

[Sidenote: Envy]

86.

Envy offends with false infamy, that is to say, by detraction which frightens virtue. Envy must be represented with the hands raised to heaven in contempt, because if she could she would use her power against God. Make her face covered with a goodly mark; show her as wounded in the eye by a palm-branch, and wounded in the ear by laurel and myrtle, to signify that victory and truth offend her. Draw many thunderbolts proceeding from her as a symbol of her evil-speaking. Make her lean and shrivelled up, because she is continual dissolution. Make her heart gnawed by a swelling serpent. Make her a quiver full of tongues for arrows, because she often offends with these. Make her a leopard's skin, because the leopard kills the lion through envy and by deceit. Place a vase in her hand full of flowers, and let it be full also of scorpions, toads and other reptiles. Let her ride Death, because Envy, which is undying, never wearies of sovereignty. {134} Make her a bridle loaded with divers arms, because her weapons are all deadly. As soon as virtue is born it begets envy which attacks it; and sooner will there exist a body without a shadow than virtue unaccompanied by envy.

[Sidenote: Fame]

87.

Fame alone rises towards heaven, because God looks with favour on virtuous things; infamy must be represented upside down, because its works are contrary to God and move towards hell. Fame should be depicted covered with tongues instead of with feathers and in the form of a bird.

[Sidenote: The Expressive Picture]

88.

A picture or a representation of human figures should be done in such a way that the spectator can easily recognize the purpose that is in their minds by their attitudes. If you have to represent a man of high character, let his gestures be such as harmonize with fair words; likewise, if you have to represent a man of low character, let his gestures be fierce, let him thrust his arms towards the listener, and let his head and chest be thrust forward in front of his feet, following the hands of the speaker. It is thus with a dumb man, who seeing two speakers, although he is deprived of hearing, nevertheless, owing to the attitudes and gestures of the speakers,

understands the subject of their argument. I once saw at Florence a man who had become deaf by an accident, who, if you spoke loud to him, did not understand you, but if you spoke gently, without making any noise, he understood you merely by the movement of the lips. Now you can say, Does not one who talks loudly move his lips like one who talks

softly? In regard to this I leave experiment to decide: make a man speak gently to you and note his lips.

[Sidenote: The Ages of Man]

89.

How the ages of man should be depicted: that is, infancy, childhood, youth, manhood, old age, decrepitude. How old men should be depicted with lazy and slow movements, their legs bent at the knees when they stand still, and their feet placed parallel and apart, their backs bent, their heads leaning forward and their arms only slightly extended.

How women should be represented in modest attitudes, their legs close together, their arms folded together, their heads bent and inclined to one side. How old women should be represented with eager, vehement and angry gestures, like the furies of Hades; the movement of the arms and the head should be more violent than that of the legs. Little children with ready and twisted movements when sitting, and when standing up in shy and timid attitudes.

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90.

You will do as follows if you wish to represent a man talking to a

number of people: you must consider the matter which he has to treat, and suit his action to the subject; that is to say, if the matter is persuasive, let his action be appropriate to it; if the matter is argumentative, let the speaker hold one finger of the left hand with two fingers of the right hand, closing the two smaller ones, and with his face turned towards the people and his mouth half open, let him seem to be about to speak, and if he is sitting let him appear as though about to rise, with his head forward; if you represent him standing up, let him lean slightly forward, with his body and head towards the people. You must represent the people silent and attentive, looking at the orator's face with gestures of admiration, and depict some old men with the corners of their mouths pulled down in astonishment at what they hear, their cheeks drawn in and full of lines, their eyebrows raised, and thus causing a number of wrinkles on the forehead; again, some must be sitting with the fingers of their hands clasped and resting on their knee; another, a bowed old man, with one knee crossed over the other, and on the knee let him hold his hand, and let his other elbow rest on his hand, and let the hand support his bearded chin.

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91.

You must represent an angry man holding some one by the ear, beating his head against the ground, with one knee on his ribs, his right arm

raising his fist in the air; his hair must be dishevelled, his eyebrows low and narrow, his teeth clenched and the two corners of his mouth set, his neck swelled and [his brow] wrinkled and bent forward as he leans over his enemy.

92.

The desperate man must hold a knife and must have torn open his garments, and with one hand he must be tearing open the wound; and you must represent him with extended feet and the legs slightly bent and his body leaning towards the earth, his hair flying and dishevelled.

[Sidenote: Notes on the Last Supper]

93.

One who was in the act of drinking leaves his glass in its place, and turns his head towards the speaker. Another, twisting the fingers of his hands together, turns with stern brows to his companions. Another, with his hands spread out, shows their palms, and shrugs his shoulders towards his ears; his mouth expresses amazement. Another speaks in the ear of his neighbour, and he, as he listens to him, turns towards him, lending him his ear, while he holds a knife in one hand and {138} a piece of bread in the other, half cut through by the knife. Another, in turning with a knife in his hand, has upset a glass on the table.

Another lays his hands on the table and looks fixedly. Another puffs out his cheeks, his mouth full. Another leans forward to see the speaker, shading his eyes with his hand. Another draws back behind him who is leaning forward and sees the speaker between the wall and the man who is leaning forward.

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III

THOUGHTS ON SCIENCE

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[Sidenote: Necessity of Experience in Science]

There is no human experience that can be termed true science unless it can be mathematically demonstrated. And if thou sayest that the sciences which begin and end in the mind are true, this cannot be conceded, but must be denied for many reasons, and firstly because in such mental discourses experience is eliminated, and without experience there can be no certainty.