

EXCERPTS FROM THE WRITINGS OF LEONARDO DA VINCI ON PAINTING

Compiled by Maria Caamano from *Leonardo on Painting*, edited by Martin Kemp, New Haven and London: Yale University Press, 1989.

By way of introduction:

I also realize that I am not a literary man, and that certain people who know too much that is good for them will blame me, saying that I am not a man of letters. These folks will say that since I have no skill at all, I will not be able to decorously express what I'm talking about. What they don't know is that the subjects I am dealing with are to be dealt with by experience rather than by words, and experience is the muse of all who write well. And so, as my muse, I will cite her in every case.

They will scorn me as an inventor and a discoverer, but they should be blamed more, since they have invented and discovered nothing but rather go about holding forth and declaiming the ideas and works of others.

There are many who would, with reason, blame me by pointing out that my proofs are contrary to established authority, which is, after all, held in great reverence by their inexperienced minds. They do not realize that; my works arise from unadulterated and simple experience, which is the one true mistress, the one true muse. The rules of experience are all that is needed to discern the true from the false; experience is what helps all men to look temperately for the possible, rather than cloaking oneself in ignorance, which can result in no good thing, so that, in the end, one abandons oneself to despair and melancholy.

Among all the studies of natural causes, Light more than anything else delights the beholder, and among the greatest features of Mathematics is the certainty of all its demonstrations which more than anything else elevates the mind of the thinker. Therefore, perspective is to be preferred to all other discourses and systems of knowledge, for in this science the ray of light is explained using methods of demonstration, which glorify both Mathematics and Physics and grace the flowers of both these magnificent sciences.

On the principle of the science of painting:

The principle of the science of painting is the point; second is the line; third is the surface; fourth is the body, which is enclosed by these surfaces. Point is said to be that which cannot be divided into any part. Line is said to be made by moving the point along. Surface is said to be like extending the line into breadth, so that it will be possible to divide it in length and breadth. But it has no depth. Body I call that which is covered by surfaces, the appearance of which becomes visible with light. Surface I call the outer skin of a body, which defines the forms of a body and its boundary.

On the second principle of the science of painting:

The second principle of the science of painting is the shadow of bodies, by which they can be represented.

On the first intentional aim of the painter:

The first intention of the painter is to make a flat surface display a body as if modeled and separated from this plane.... This accomplishment, with which the science of painting is crowned, arises from light and shade, or we may say chiaroscuro.

There are two principal parts into which painting is divided: ...the outlines which surround the shapes of solid bodies...and secondly what is called shading.

On the ten functions of the eye, all appertaining to painting:

Painting embraces all the ten functions of the eye: darkness, light, body, and colour, shape and location, distance and closeness, motion and rest.

On the three branches of perspective:

There are three branches of perspective; first, the diminution of objects as they recede from the eye, known as Diminishing Perspective. Second, the way in which colors vary as they recede from the eye. Third, the explanation of how the objects in a picture ought to be less perfect and complete in proportion to their remoteness. The names are as follows: Linear Perspective, The Perspective of Color, The Perspective of Disappearance.

On the errors of those who practice without knowledge:

Practice must always be built from sound theoretical knowledge. The gateway to this theoretical knowledge is Perspective; without Perspective nothing can be done well or properly in the matter of painting and drawing.

On the eye:

If the eye is forced to look at an object far too close to it, that eye cannot really form a judgment of that object, for instance, when a man tries to look at his nose. As a general rule, then, Nature teaches us that no object can be seen perfectly unless it is placed at least at a distance from the eye equal to the length of the face.

On linear perspective:

Perspective is the rational law according to which experience shows us that all objects send their images to the eye following pyramidal trajectories, ...arid bodies of the same size will make more or less narrow pyramids according to their respective distances. I call pyramidal trajectories the lines which come from the surfaces and contours of bodies and arrive, after a long distance, at a small common point - a point is something that cannot be divided in any way, and this point, situated in the eye, brings together the summits of all of the pyramids.

On the variety of characters in compositions with figures:

In compositions with figures, the characters must differ in complexion, age, colour, attitude, corpulence, build, fat, thin, tall, short, proud, courteous, old, young, strong and muscular, weak and with few muscles, happy, melancholic, with curly or straight hair, short or long; - with alert or vulgar movements; - and vary the costumes and colours and all other things necessary for this composition. It is a cardinal sin for the painter to create faces that look alike, and the repetition of gestures is also a great fault.

On the illumination of figures:

Light should be employed in the same way as it would appear in the natural setting in which you portray your figure. If you portray it in sunlight make the shadows dark with large pools of light and imprints their shadows.... If you represent your figure in dull weather, make little difference between the light and shade, and do not make any other shadow at its feet.... In an interior, make a great difference between the lights and the shadows and have shadow on the ground.

On the mirror as the painter's master:

To see if your painting conforms to what you are depicting, take a mirror and look at the reflection of the model in it, then compare this reflection with your painting, and examine closely the entire surface to see if the two objects are similar. Since the mirror can, through line, light and shadow create an illusion of relief, you, who have among your paints, shadows and light that are stronger than those in the mirror, if

you know how to combine them, your work will doubtless appear similar to reality as seen in a large mirror.

On painting and its elements:

Painting consists of two main parts: the first is form, that is to say, the line which defines the forms of bodies and their details; - and the second is colour which is enclosed by line borders.

Painting consists of two main parts; - the outline which surrounds the forms and painted objects, which we call drawing, and shadow. But drawing is of such excellence that it explores not only the works of nature, but also an infinity of others beyond it.... Thus we would conclude that drawing is not only knowledge but also the divine power capable of reproducing all of the Almighty's works that are visible.

On the beauty of colours:

...quality of colours is revealed by means of light, it is to be deduced that where there is more light will be seen more of the true quality of the illuminated colour; and where there is more shadow, the colour will be tinged with this shadow.

On aerial perspective:

There is another kind of perspective which I call aerial, for the differences of the colour of the air can make us distinguish the respective distances of many buildings, the bases of which are cut by a single straight line, as when we see them above and beyond a wall, let us assume that they appear to be all the same size, and that you want to show that some are more distant than others, and represent them in a fairly dense atmosphere. You know that in such an atmosphere, the most distant objects, such as mountains, appear, because of the great quantity of air that lies between them and your eye, as blue as the air when, the sun rises. You will therefore give the nearest building above the wall its real colour, and the more distant one you will make less distinct and bluer. And the one that you want to show even farther, that one you will make even bluer; - and the one which lies five times more distant, make it five times bluer. And with this rule, it will be obvious which of the buildings that appear to be the same size is the more distant and so (in reality) larger than the others.

How the blue of the air arises:

The blue of the sky arises from the density of the mass of illuminated air interposed between the upper darkness and the earth. The air will assume less of a blue colour to the extent that it is closer to the horizon, and will be deeper to the extent that it is more remote from the horizon....

On tone and value:

Different colours can receive from the same shadow an equal degree of darkness. It is possible for colours of all sorts to be transformed, by a given shadow, into the colour of this shadow.

This is proved by the darkness of a cloudy night, in which no form or colour of any object can be distinguished; and since the darkness is only the deprivation of incident or reflected light which allows us to distinguish all the forms and colours of bodies, it is inevitable, when light is entirely eliminated as a cause, that the effect or perception of the colours and forms of these bodies also disappears.

On the ideal lighting for each colour:

You must observe under which aspect a colour appears at its finest in nature; - when it receives reflections, or when it is lit, or when it has medium shadows, or when they are dark, or when it is transparent. This depends on the colour in question, for different colours are at their most beautiful under different aspects, thus we see that blacks have the most beauty in shadow, whites in the light, and the blues greens and browns in medium shadow, the yellows and reds in the light, the gold in reflections, and the lakes in medium shadow.

On light and shadow:

Shadow is the absence of light or simply the opposition of opaque bodies that intercept the rays of light. Shadow is of the nature of darkness; - light is of the nature of splendor. They are always combined on the body, and shadow is more powerful than light, for it can completely exclude light and deprive bodies of it entirely while light can never eliminate all shadows from bodies, at least from opaque bodies. Shadows can be infinitely obscure or display an infinity of nuances in the light tones. Shadows are the manifestation by bodies of their forms. The forms of bodies would not show their particularities without shadow. Shadows should always partake of the colour of the bodies they conceal.

No object appears to us in its natural whiteness, because the place in which it is seen makes it, for the eye, seem more or less white according to whether the place is more or less dark. We learn this, for example, from the moon, which in daytime appears with so little brightness in the sky, and at night with such brightness that it disperses darkness like the sun or daylight. This is due to two things- the tendency of nature to show coloured images more perfectly, the more different the colours, and, secondly the pupil is larger at night than in daytime, as has been proved....

On transparency:

If you want to give colours their greatest beauty, first make a preparation of very pure white; - and I say this for transparent colours, for in the case of those which should not be transparent, the white preparation is useless. This can be learned for example from a coloured glass which, when placed between the eye and air in the light, is of great beauty, - this does not occur when they are seen against darkened air or something black.

How to recognize a good painting and by which qualities:

The first thing to consider, if you wish to recognize a good painting, is whether the movement is appropriate to the state of mind of the person who is moving; - secondly whether the more or less pronounced relief of objects placed in the shadow is adjusted to the distance; - thirdly, whether the proportions of the parts (of the body) correspond to those of the whole; - fourthly, whether the choice of positions is appropriate to the type of actions; - fifthly whether the detail of the figures corresponds to their character, that is, delicate limbs for delicate people, strong for the strong, fat for the fat, etc.

How to study human movement:

Human movement may be understood through knowledge of the parts of the body and the entire series of the positions of limbs and articulations, then, set down by means of some stenographic notation the actions of people, with their particulars, without them noticing that you are observing them; - for if they realized it, this would intrigue them and the act in which before they were completely absorbed will lose some of its force; - for example, when two angry men are in the midst of an argument, each thinking that he is right, they agitate their eyebrows and arms and other limbs with much vehemence, making gestures that are appropriate to their words and intentions. You would not be able to obtain this result if you asked them to act out this anger or some other passion like laughing, crying, pain, surprise, fear, etc. And so take care always to carry with you a sketchbook of gelatine-coated paper and with a silverpoint briskly note these movements, and note also the attitudes of the bystanders and their positions, - and this will teach you how to make compositions. And when your sketchbook is full, lay it aside and keep it for your projects, then take another one and continue. And this will be very useful for the art of composition, on the subject of which I shall write a separate book which will pursue the study of the figures and the separate limbs and their various articulations."

On laughter and tears and what distinguishes them:

You will not give to the face of someone crying the same movements as to the face of someone who is laughing, even though (in reality) they often look alike, - for the right method is to differentiate them, as the emotion of laughing is different from the emotion of crying.

With those who weep, the eyebrows and mouth change according to the different causes of their tears, for the one is crying out of anger the other out of fear, and some out of joy or a tender feeling, others out of anxiety, for pain or sorrow, and yet others out of pity or grief from having lost a relation or friend, and among these weepers, some seem desperate, others restrained, some only shed tears, others cry out, and some lift their eyes skyward and lower their hands with the fingers joined, some are timid, their shoulders hunched to their ears, and so on, according to the causes mentioned.

The one shedding tears raises his eyebrows on the inner side, and contracts them, and creates wrinkles between and above them, - the corners of the mouth are turned down, but the one laughing has them turned up and his eyebrows are separate and raised.

How to paint fabrics:

Figures wearing a coat must not let their forms show through so that the coat appears to rest on the flesh (unless you want to make it appear so); - but you must consider that in between the coat and flesh there are other pieces of clothing which prevent the naked forms of the limbs from appearing or from being visible through the coat. As for the limbs that show through, make them thicker, so that the clothing under the coats is evident you will reveal the exact dimensions of the limbs only in the case of nymphs or angels, which are represented draped in fine cloth, adhering to and molding their limbs in the wind.

How to portray landscapes:

Landscapes should be portrayed in such a manner that the trees are half illuminated and half shaded but it is better to make them when the sun is covered by clouds.. ...That body will exhibit the greatest difference between its shadow and its lights that happens to be seen under the strongest light, like the light of the sun or the light of a fire at night. There will be little difference in the lights and shadows in that body which is situated in a moderate light, and this occurs at the onset of evening or when there is cloud... To much light makes for harshness; too much darkness does not allow us to see. The medium is best.

On water:

Of things reflected in water that will be more similar in colour to the thing being reflected which is reflected in clearer water... Things which makes this water cloudy. Of things reflected in running water, the image of that thing will be displayed as more extended and with more muddled contours that is impressed on water whose course is most rapid.

Sea with waves does not have a universal colour. but he who sees it from dry land sees it dark in colour and it will be so much darker to the extent that it is closer to the horizon... and he who sees the sea from the high seas sees it as blue.

On horizons:

Horizons are at various distances from the eye, so that what is called the horizon, where the brightness of the air borders on the boundary of the earth, it to be seen in as many locations along the same perpendicular to the center of the earth....

On painting and the representations of mountainous landscapes:

Painter, at the summits of mountains show the rocks of which it is composed, in great part exposed of earth, and the plants that have arisen there should be small and scanty and largely pale and dry through lack of moisture...the trees descend towards the bases of the mountains they will be more vigorous and thickly branched and leaved.... Plants and trees will be paler to the extent that the soil which nourished them is more sterile and deficient in moisture.