

CHAPTER 9

The drawing lesson: preparation

Introductory

The purpose of this introductory is to set the scene for a drawing lesson that:

- *Enables anyone to achieve the highest levels of accuracy.*
- *Ensures “seeing in new ways”.*
- *Helps all who wish to draw faster and more freely without losing coherence.*
- *Prioritises the role of feeling in line production.*
- *Provides a sound basis for exaggeration, distortion and abstraction.*
- *Encourages creativity and personal expression.*

These desirable objectives are achieved by promoting the use of appropriate visual capacities and using them to bypass ways of looking that hinder progress.

PROBLEMS AND OUR CAPACITY TO SOLVE THEM

Why all human beings find accurate visual measurement difficult

There is an enormous amount of evidence to support the claim that everybody is likely to have difficulty in making accurate measurements with their eyes.¹ It comes from four types of source.

- The widespread use by artists, including by the “*old masters*”, at least since the Renaissance, of mechanical aids to accuracy (perspective frame, camera obscura, etc.). Clearly, nobody was prepared to trust their unaided eyes.
- Controlled experiments testing the accuracy of people’s efforts to copy groups of straight lines of varying length, orientation and position on

¹ See “*What Scientists can Learn from Artist*”

the page. Even for this seemingly easiest of copying tasks, the average error for both skilled and unskilled adults was 5° for angles, and 10% for both relative lengths of lines and relative position of their end points. The fact that this was an average means that some errors were less and some greater. What the study found was that, when the lines being copied were close in position and similar in both length and orientation, the errors were much smaller (often approaching zero) but, when they were far apart and very different in orientation and length, angular errors of 10° and relative length errors of 20% were not uncommon.²

- Studies of visual perception which reveal that the visual experience of everyone is much influenced by the *constancies* of length, orientation and shape, all of which regularly interfere with attempts at copying accuracy.
- Studies of different types of visual memory, which show that they are all fragile, and that this fragility regularly influences judgements of linear relationships.

In summary, these four types of evidence make it clear that all who wish to achieve accuracy in drawing-from-observation, will have to do so despite their having:

- Poor capacities for making the visual measurements upon which doing so depends.
- A battery of visual systems that distort appearances in ways that make matters more difficult, and whose influence must be circumvented.

What we can do about it

The unavoidable state of affairs just described may seem discouraging, but it need not be so. Both everyday experience and science-based findings support one another in providing evidence of two visual capacities that provide well authenticated reason for optimism. Thus everybody:

- Is good at judging whether two things are the same or different, and in which direction the difference lies (here called “*same/different judgements*”).
- Demonstrates wonderful potentials with regard to the visual measurements required for a wide range of everyday visually guided actions.

² “*What Scientists can Learn from Artists*”, Chapter 5.

Moreover, the fact that these are mediated by the *feel-system* explains why the method described below works so well with respect to expression of feeling and line production speed.

Skills have to be learnt

However, skills have to be *learnt*, including those required for making the measurements used in drawing-from-observation. The learning process is based on making *comparisons* and is fuelled by the *feedback* these provide. Certainly, appropriate use of comparison can explain two remarkable facts, namely:

- That so many art teachers assert that, if properly taught, anybody can do likewise.³
- The high levels of accuracy achieved by numerous artists over the centuries despite being burdened by the poor capacities for visual measurement which they share with everyone else.

PRELIMINARIES

My *feeling-based drawing lesson* starts by explaining that my teaching, like that of Lecoq de Boisbaudran, places great emphasis on *accuracy*. This is not because I think that accuracy is desirable in its own right, which I do not, but because the *accuracy aspiration* is an essential ingredient of the best strategy I know of for helping people to see in *new ways* and, beyond that, to develop their *personal creativity*.

Two other aspects of my lesson which I share with Lecoq de Boisbaudran is the insistence on *rigour* and, if ever there are moments of discouragement, on *perseverance*. Despite what many might feel to be the case, this combination enormously speeds up the process of learning for, although insisting that students get all relationships spot on, may slow progress in the first instance, very soon the reliable foundation that it creates pays handsome dividends. Lecoq de Boisbaudran is reported to have pounced on the slightest mistake because he knew that, if he allowed his students to get away with sloppiness, they would never progress to being able to fulfil the criteria of being able to draw a man who has been thrown out of a sixth floor window before he hits the ground.

The lesson can vary in its detail, but it is fairly standard with respect to its

³ Unless they are suffering from a very severe handicap, such as blindness.

main characteristics. Essentially the same lesson is given to complete beginners and seasoned professionals: The beginners need solid foundations and the professionals are asking for help because the method they have been using, though demonstrably effective up to a point, will not get them where they want to go (most often they ask for help with *speed* or *expressiveness*). In this situation, despite their impressive skills, they need to find a new point of departure.

Preliminaries

Before getting down to the actual lesson, I give the students a short talk alerting them to matters outlined in the *Introductory* to this chapter. First, I tell them about the research results which show that all people have poor capacities for making visual measurements of line lengths, orientations and curvatures. Second, I explain that the fact that all the great artists of history had these shortcomings (indeed, a high proportion of them had additional ones)⁴ shows that there is no reason why having them should prevent anyone from achieving the best levels of drawing skill. And, third, I give reasons why I am suspicious of anyone who says “*I simply draw what I see*”. I tell the students that by the time they have completed the drawing lesson, their efforts will have taught them that the visual world is much more difficult to pin down and much more intriguing than most people suppose. Nor, by then, will they doubt the deviousness of the ways of visual perception.

The first step in the drawing lesson is to choose something to draw. For the sake of illustration, I have chosen a particular tree trunk on the esplanade at Castelnau de Montmiral (*Figure 1*). The second step is to ask the students to make a drawing of the contours of the tree, up as far as the first leaf-covered branch. I make a point of emphasising that this is to be a lesson about the depiction of *shape* and not of surface-form. For this reason, no shading is required. The only specific instruction given is that the drawing should be “*as accurate as possible*”. This first drawing, which is to be done in the students’ “*own way*” and in their “*own time*”, has three purposes. It provides me as their teacher with:

- A benchmark to be used as a guide to future progress.
- An appreciation of the students’ level of attainment.
- An idea as to how they set about a drawing task.
- A starting point for discussion.

⁴ Patrick Trevor-Roper, 1997, *The World Through Blunted Sight*, Souvenir Press.

When they have completed their drawings, the students bring them to me in the studio. My first question is whether they used an easel and, if the answer is, “No”, we get one ready to take with us. Also I make sure that students have a *drawing board*, a *reasonably large sheet of paper*, *clips* and an *eraser*. For myself, I bring a cheap school exercise book (for illustrating explanations), a pencil and a pencil-sharpener. Armed with this equipment and, if required, folding stools for us both to sit on, we proceed to the esplanade and settle down in front of the chosen tree.



Figure 1 : A tree on the esplanade

I now check the student’s preliminary drawing against the tree that it is supposed to represent. So far, even in the case of the professionals, it has always been full of inaccuracies. If the students seem unaware of these, I point out a few of them just to establish the existence of a problem. Significantly, once a student’s attention has been called to their errors, he or she finds them easy to see.

Setting up

Next, I set up the easel on which I place the drawing board, taking every care to see that it is

- At a comfortable height for drawing upon.
- Perpendicular to the student’s line of sight. For example, if the students prefer to look at the tree to the side of the drawing board, it will need to be approximately *vertical*, whereas, if they decide to look over its top, it will have to slope slightly away from them since, the fact they would have to look down at it, means that a strictly vertical drawing board would not be perpendicular to their line of vision.

Thus prepared and after warning students that the first lesson often consists of a great deal more talk than hands-on drawing activity, I start by explaining the advantages of the large piece of paper and the vertical (or near vertical) drawing board that I have just put in place.

The large paper is contrasted with the small pieces usually preferred by amateurs, which tend to cramp freedom of movement. Since one of the aims of the lesson is to help the students develop a sense of their own personal “*feel-space*” and since this varies with each individual, it is prudent to leave plenty of room for manoeuvre. Also, since we are not interested in composition, it does not matter how much blank paper is left.

There are several reasons relating to the influence of the orientation of the drawing board on performance that add together to make a fairly compelling argument against using it in a horizontal or near horizontal position. Here are the two most important of them:

- ***Fragility of the memory of the image on the retina***

In order to explain the connection between the fragility of memory of the retinal image (iconic memory) and the use of a drawing board that is perpendicular to the line of sight, it is necessary first to appreciate the vital part

this aspect of memory plays in drawing-from-observation. For this purpose it is important to reiterate the fundamental role of *comparison* in the process of learning to draw (or learning any other skill). This workhorse of knowledge-acquisition is necessary for making judgements of relativities between model and copy and therefore for discovering *mistakes*. As indicated in “*What Scientists can Learn from Artists*”, a major stumbling block to the fruitful use of comparisons is the fragility of various kinds of *short term visual memory*, amongst which the most fragile is *iconic memory*, the memory for the patterns of light that are continually striking the retina. As each new pattern arrives it supplants and destroys all aspects of its predecessor except those where no change has taken place. Accordingly the only two bits of information that can be extracted are that which is the “*same*” about the compared patterns of input and that which is “*different*”.

But this is precisely what the artists want when making comparison between models and copies that are similar only with respect to the shape of their contours. Although meant to be similar, human error will creep in and make sure that they will never be quite the same, particularly since if comparisons between a natural scene and a line-drawing of it will always involve comparing a rich array of shapes, colours and textures with a number of lines on an otherwise blank piece of paper.

When something is nearly the same but nevertheless different, the eye/brain automatically draws attention to differences. This is good news for all who want to learn to draw from observation, since the differences are nothing other than the mistakes which need to be corrected. It is even better news still that the intrinsic unpredictability of mistakes ensures that our attention will be attracted to *aspects of appearances that we would otherwise have overlooked*. In other words, we will have taken a step in the direction of “*seeing in new ways*”.

Obviously we need to make full use of this wonderful opportunity. Indeed, it is difficult to see how we could make progress if we should squander it. Yet this is just what anyone does who uses a horizontal drawing board.

As just indicted, the *iconic memory-base* is completely disrupted every time a new pattern of light enters the eyes. Accordingly, it will be disrupted by the act of looking down at the drawing board.

Once disrupted, the artists are left with nothing to guide line production,

other than information residing in longer-term memory. Accordingly, they have no option but to produce drawings based on the necessarily generalised knowledge that this contains.

In summary, except in exceptional circumstances, the best position for the drawing board is one in which the eyes can move without interruption between model and copy. This means a vertical or near vertical drawing board situated so that a minimum of eye movement is required when switching attention between the object and the emerging drawing of it.

- *A misplaced lack of confidence*

The second advantage of using a vertical drawing board is that it bypasses a widespread problem associated with the use of a horizontal one. This concerns the question of confidence. If students are asked to explain why they have chosen to work on a horizontal surface, they regularly give two reasons. The first of these is convenience: They regard lugging an easel around as a chore. The second and more serious one is a mistrust of their manual control skills. They say such things as, “*If I were to try to draw from the shoulder, I couldn't produce a smoothly drawn line to save my life*”. They are convinced that supporting the hand on a horizontal surface offers the only way that they will be able to control line output. This may be true in terms of their past way of doing things, but if they are to profit from the lesson that follows, they will have to do away with this prop. Their arm must be free to move in all directions with equal facility.

A reminder

Before leaving the subject of the position of the drawing board, it is worth taking the opportunity to repeat and to re-emphasise (as I will be doing at various points in this text) that the approach to drawing I am advocating is only one of the many possible ways. Though the reasons for using an upright drawing board are very strong, they hardly amount to proofs of its *necessity*. It would be dishonest to make such a claim when I am aware of the existence of a photograph that shows an artist of the calibre of Rodin drawing horizontally on his knees (*Figure 3*). Indeed, it would be hypocritical for me to do so when I have an early study of myself holding my pad horizontally (*Figure 4*).



Figure 2 : Rodin at work on one of his famous Cambodian dancer series.

However, it is worth pointing out that even the use of the horizontal drawing board by Rodin could be reconciled with the arguments presented in this book, since it would be plausible to suggest that, by the time the photo was taken, Rodin had already developed his feel-system over many years. If so, he would no longer have been so much at the mercy of the difficulties and speed restrictions inherent in more pedestrian approaches. Anyone who assiduously follows the lesson in the next chapters would set themselves on a path that should be able to achieve a like independence.

Be that as it may, the important point to be underlined is that the purpose of the lesson is not to provide a unique method of learning to draw but to acquaint students with as many as possible of the factors involved in the drawing process so that they can better deal with problems that arise in their own way.



Figure 3 : Myself when learning

Confidence in motor control skills

As an approach to building up confidence in *motor-control skills*, I am likely to step back a couple of paces, take the pencil sharpener from my pocket and throw it towards the student and, as I do so, call out, “*Catch this*”. Almost all my charges are able to obey my instruction with little difficulty. I now cup my hands in front of me and ask for the missile to be thrown back into them. Usu-

ally, though by no means always, the first effort is a little wayward and I have to move my hands a little this way or that in order to gather in the pencil sharpener. However, there are very few students who are not dropping it right on target after a couple of attempts.

The value of this throwing and catching game is that it provides a demonstration of what can justifiably be described as a miracle of hand/eye coordination. To explain why such seemingly ordinary actions are so remarkable that the concept of *ballistic movement* is introduced. Once the bullet has left the muzzle of a gun, or the pencil-sharpener has left the students' hands, there is no way that its trajectory can be altered. It follows that, if it is to arrive at its target, the whole action must be planned in advance whether by the marksman's or the student's eye/brain. In the case of throwing the pencil sharpener into my hands, this means that the student's eye/brain must:

- Judge the distance to my hands (no simple task).
- Coordinate the muscle groups that underpin the arm and body movements that are required for ensuring that the hand releasing the pencil-sharpener provides necessary force in precisely the right direction and that it releases its grasp at exactly the right moment (a mind boggling complexity of interactions between a large number of muscle groups).

The whole process is miraculous indeed.

Continuing in the same vein, I point out that throwing pencil sharpeners into hands is not the only evidence of remarkable powers of eye/hand coordination. For example, the everyday act of picking up a cup by its handle and lifting it to the mouth smoothly and without hesitation is a *tour de force* of controlled ballistic movements. Or, take the case of the almost invisible screws of the sort found inside old fashioned watches. No matter how good our eyesight or small our screwdriver, the task of unscrewing one of these would reduce the best of us to being "*all fingers and thumbs*". However, if given a watchmaker's magnifying glass, the task becomes easily possible for everyone. Just think what this means in terms of fine control of action!

To develop the argument relating to confidence further, the case (mentioned earlier) of children learning to ride bicycles is introduced. Very few of them fail in this task. Why is this so?

One part of the answer is that virtually all of them have *the possibility of*

succeeding because, during their early childhood, they have developed the eye-body control capacities necessary for doing so. Another part, is that *they succeed because they expect to do so*. Not having been told by anyone that "*cyclists are born not made*", they are not discouraged by the fact that, upon first mounting the bicycle, after the briefest of wobbles, they fall off. They just get back on and have another go. They take setbacks in their stride because they know full well that it is perfectly normal to wobble and fall off many times before the wobbles come under control and the falling off becomes a thing of the past. They probably do not think of what is happening in terms of the wobbles providing the feedback which enables learning, but that is what is happening, they are learning from their mistakes.

In short, a little reflection makes clear that everybody can achieve the most amazing feats of body/arm/hand coordination so long as the muscle systems that control them are given the right instructions. It is reassuring for those who lack confidence in their drawing skills to realise that this universal potential for training eye/body's coordination skills very definitely applies to the ones used in drawing, for it means that high levels of performance are within everybody's grasp.

If this is the case, why do so many people when learning to draw find difficulty in controlling the output of lines? The answer is very simple. Incompetence is always a feature of undeveloped skills. The eye/body/hand coordination needed for drawing requires the same kind of learning sequence as that necessary for the original process of learning to walk, drinking from a cup, riding a bicycle, tossing a pancake, knitting a pullover, using a plasterers trowel, typing a letter, playing tennis and, indeed, mastering every single one of the entire repertory of skills requiring eye/body coordination. When learning any of these skills, everybody starts with the equivalent of wobbling about all over the place. It can need a great deal of perseverance if the clumsiness is to become a thing of the past. However the only reason why long periods may be needed for skill development is that the relevant context of limb control and balance has to be developed first, as in the case of children learning to walk. Accordingly it is good news for adults learning to draw that they already possess the necessary muscle control and sense of spatial relations. They have been using them for other tasks on a daily basis ever since they reached the stage of being well coordinated children. The priority is not the muscle control side of eye/hand coordination but the knowledge of

which relativities to look for and where to target line production, combined with the confidence that being in possession of such knowledge provides. Accordingly, if drawing students are properly taught, it is not long before line-production awkwardness ceases to be an issue. I cannot remember any student who had not achieved a reasonable proficiency by the end of the drawing lesson being described in this chapter and the next two chapters, though, of course, the tendency to wobble never disappears without trace, and a good thing too. Minimal wobble gives lines that are produced free-hand a different and more interesting look than mechanically generated ones.

With the passage of time, as they gain confidence, the students will find that they are able to cite their own achievement as support for the validity of the claim of the sculptor Antoine Bourdelle (1861 – 1929: a student of Rodin and a teacher of Matisse) that “*the hand is never clumsy when the thought is precise... and the spirit is not hesitant.*” Through Rodin, this highly regarded sculptor was no doubt influenced by Lecoq de Boisbaudran, who placed precise thought at the centre of his teaching philosophy.

Establishing a viewpoint

Before finally setting up the easel and the drawing board, it is important to specify precisely the viewpoint from which the tree should be drawn. Without this step, the drawing lesson risks being a complete waste of time. The viewpoint can be established by aligning one of the contours of the tree with a feature in the background. For the scene in *Figure 1*, a position has been chosen from which the corner of the house can be seen on the right hand side of the tree trunk and the window shutters on the left hand side. A more precise option would be to align the top right hand corner of the shutter with the left hand edge of the tree. To do so the viewpoint would have to be displaced slightly to the right. The result would be an arrangement along the lines indicated in the contour drawing in *Figure 1* of the next chapter. In it more can be seen of the wall to the right hand side of the tree while the right hand edge of the shutter is completely obscured by the tree trunk. In the same illustration an alternative alignment possibility is also suggested.

This method is both very accurate and very reliable. Artists using it will be able to check that their viewpoint has not shifted no matter how long they spend working on a particular drawing. Indeed, it will also enable them to relocate their position if ever they leave their viewpoint (for example, to stand back to look at

their drawing from a distance or to take a lunch break), no matter how far away they go or for how long.

Nor is ensuring a stable viewpoint the only advantage of the procedure. It also gives artists the freedom to move their heads from side to side or up and down. This is important because *moving the head* provides extremely useful sources of information.⁵ We will find later in the lesson that the flexibility of being able to choose between the information provided by stillness and that furnished by movement can be very useful indeed.⁶ According to the needs of the moment, either of these two alternatives can be the best to use. However, almost always, a combination of both is the best policy.

Closing an eye

When the students declare themselves satisfied with the viewpoint which they have established, I ask them to double check it by looking at the chosen point of alignment, first, with one eye and, then, with the other. If any discrepancies between the two images are revealed, I suggest closing one of their eyes. This step is always a good idea and can very often be crucially important. Firstly, looking *monocularly* will make the process of aligning both easier and more accurate. It will also bring another advantage of potentially much greater importance. Restricting vision to one eye inhibits *stereopsis*, one of the eye/brain’s most potent ways of separating out objects from their backgrounds.⁷ With stereopsis in action, trying to make use of relationships between features of any one particular object and those of other objects that are found either *in front of* or *behind* it, is very much more difficult than when it is prevented from operating by closing one eye. Since analysis in terms of *in front/behind relationships* is one of the most effective ways of dealing with two of the most basic problems facing anyone wanting to learn to draw, it follows that keeping both eyes open can be a very bad tactic indeed.

And what are the two problems that analysis in terms in front/behind relations can help us to overcome? They are:

- The ubiquitous influence on appearances of the constancies of orientation, size and shape.⁸

5 “*What Scientists can Learn from Artists*” : Chapter 5.

6 “*What Scientists can Learn from Artists*” : Chapter 11

7 For more about stereopsis see “*What Scientists can Learn from Artists*” : Chapter 17

8 .For more on the relevant constancies see “*What Scientists can Learn from Artists*” : Chap-

- The tendency of eye/brain systems to take in information as globally as possible with the result that nuances of appearances are overlooked.

Implications

Many students, as soon as they find a subject that interests them, launch almost immediately into drawing the first line. They leave little or no time for forethought, despite the considerable advantages that can be gained from it. In this chapter, time has been taken to think about the nature of the task that confronts them and some of the problems that they may face. In particular, emphasis has been placed on the importance of:

- *An informed appreciation of the role played by the eye/brain in mediating drawing skills and a knowledge of the various ways in which this should provide a source of confidence for everyone.*
- *Using accuracy as a tool for learning rather than as an objective in itself. Without this or some other appropriate criteria, learning cannot occur, for it depends on using perceived inaccuracies (“mistakes”) as feedback.*
- *Grasping the potential value of the feeling-based system as a means of drawing more directly, more accurately, with greater speed and with more expression.*
- *Understanding how the constancies of length, orientation and shape provide challenges for artists when they are drawing from observation.*