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PRACTICAL DRAWING

PRACTICAL DRAWING

A BOOK FOR
THE STUDENT AND THE GENERAL READER

BY
E. G. LUTZ
==

WITH EXPLANATORY ILLUSTRATIONS BY THE AUTHOR

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BEGINNING TO DRAW

I

BEGINNING TO DRAW

TO draw from the flat copy is not difficult; but few beginners find it an easy task to make a sketch from solid or real objects. The usual way in elementary art instruction is to furnish the pupil with an outline of something to be copied. Now, leaving aside the question whether this is, or is not, the right way of teaching the rudiments of drawing, it seems true that, for most of us, imitating by drawing from a copy—that is, another's rendering of something in the visible world—is easier than making one's own interpretation of actuality. The accomplished master or native genius, of course, would find it irksome if compelled to copy another's work.

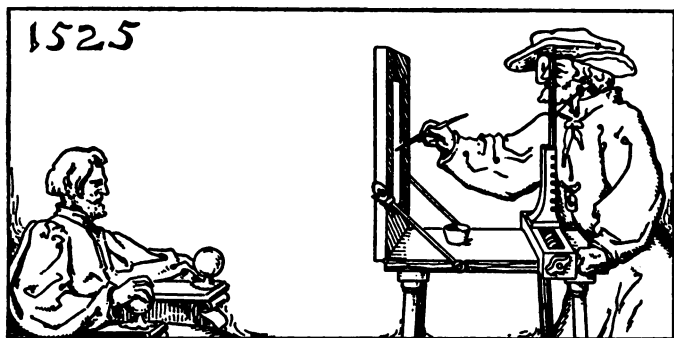
But should drawing from the actual objects be so hard? Wouldn't it be just as simple as working from the flat if the student could let himself believe that the visual rays from all the points of the object, or the view, were brought forward to a supposed plane directly in front of him? This plane with the object or view thus ideally outlined he would need

merely to consider as a huge flat copy to be faithfully imitated.

Many mechanical aids to drawing have been contrived. Of these the camera lucida and the camera obscura, both requiring the interposition of either a lens or a prism, are to be regarded more in the nature of optical instruments than as apparatus for aiding or lightening the work of graphic delineation.

A favorite example cited in elucidating the principles of perspective is that of the window-pane on which is traced a view of the street or buildings outdoors. This pane of glass would correspond to the hypothetical plane just spoken of. Somewhat on this order is the machine mentioned by Albrecht Dürer in his book on the art of measuring. It consisted of a transparent surface placed between the subject and a single eye-piece fixed in such a position that the artist could look through the opening and trace on the plane the outlines of the subject. This gave him a one-eyed view, so to speak, of the model. Other inventions of a similar nature have been made, some using a transparent gauze that could be easily marked with a pencil. It would appear by the bowl on the table of the apparatus in Dürer's engraving, that he used a liquid and painted the image on the transparent surface. This invention is perhaps more to be considered as a curiosity than as a practical affair.

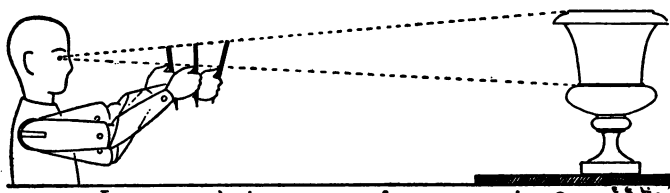
The suggestion offered here of regarding the object or view as nothing but an ideal, or supposedly flat picture on an imaginary plane, to be faithfully transcribed on paper, seems at variance with the ideas of the realists who shudder at the notion of so looking on the perceptible world. But for



Apparatus for drawing invented by Dürer

beginners there is a practical utility in considering everything we see as nothing more than an aggregation of areas, outlined and variously hued and shaded. The author is well aware of the importance of rendering on paper, or canvas—as the case may be—the effects of roundness, bulk, and dimensions; but he wishes to emphasize the significance of beginning the study of drawing by the simplest methods. This he believes to be the representation of things by making the first strokes

on the paper in lines or forms more or less geometric in aspect, rather than attempting to sketch at first the elusive bends of curves or the subtlety of contours; and that furthermore, in the beginning it would be better to work with simple straight lines; and when attempting to shade round forms, with their finely graded tones, hard to perceive, to en-



An uncertain way of measuring

deavor to get the effect by a graduated series of flat tints.

It may be asserted that this does not represent the form correctly. Perhaps, but it is more likely to approximate the truth than a drawing that is the result of trying to copy the exact blendings of the tints and shadows at the first essay.

Of especial value is simplification when one comes to deal with curves. Rare is the draftsman who can successfully get the curves of the human figure without doing more or less blocking out with straight lines.

“But just how do I begin?” is the first thought

that enters a student's mind, when with paper, drawing-board, and charcoal, he presents himself before a subject ready for work.

There are many methods in the making of drawings; but there is but one way of starting, and that is, to start "big" and to start quickly.

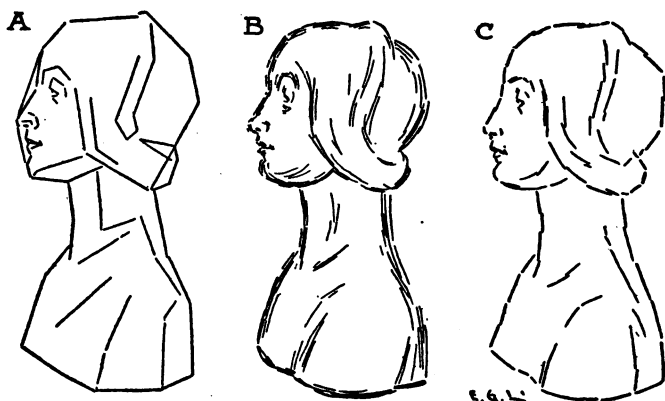
To begin at one point, say the eye, and gradually build the drawing around that in a finicky, tickling, small way, is not the right method. Nor, as has been advised, to begin at the upper left-hand corner and gradually work downward, and to the right, so as not to smudge the work.

Perhaps the best thing in answer to the query as to how to begin is to give specific examples showing and explaining the progressive steps as we go along.

Say that you are going to draw the cast of a head (see diagram in this chapter). Place it directly before you in a light that will keep the shadows as much as possible in large masses, and the side in light not too much broken up with spots or shadows. This trying to get a pleasing distribution of light and shade on the cast is part of the business of learning to draw. The doing of it will impress on your mind the importance of getting a good light-and-shade effect. Of course, you will remember that in trying to get a good distribution of light and shade, the half-tints must be considered. They are needed

in order to bring out the forms. Now place yourself distant from the cast a little more than three times its greatest dimension—breadth or height, whichever is greater. Never get nearer.

As to starting quickly: Without delay mark



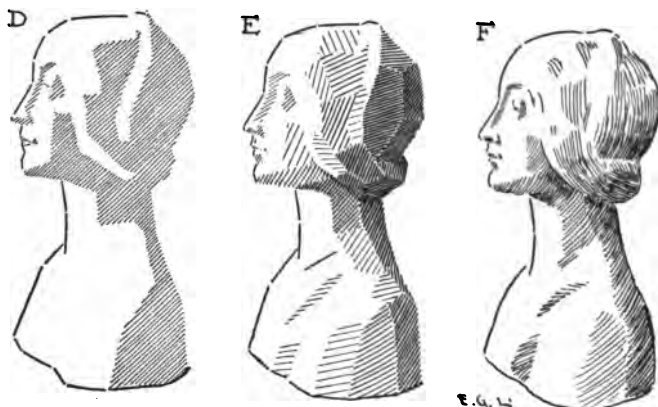
CHARACTER OF OUTLINE.

- A. Simple straight lines, assuring vigor and a certainty in the drawing.
- B. Fumbling and vacillating lines, exact contour doubtful.
- C. Weak and indefinite strokes. Drawing likely to be absolutely characterless.

something on your paper. This does not mean to blunder in hastily without thought. It is presumed that you have studied the cast first for a few minutes by mentally analyzing it, and seeing what it is that gives it its particular character; that is to say, what differentiates it from other casts.

To continue: Get something of the plan or the contour of the subject as soon as possible for a basis

on which to begin to criticise. The faculty of being a good critic of your own drawing, whether you work in a classroom or your own studio, is one of the most important matters connected with the study of art.



METHODS OF BEGINNING THE SHADING.

- D.* An even tone put on first, nearly that of the half-tint. Try to work this way; and in continuing keep the shadings in simple unbroken tones.
- E.* Shading reduced to an aggregation of flat areas of tints from the darkest to the lightest. A good way to work if not overdone or carried too far.
- F.* Trying to get the exact effect of roundness with the first strokes of the pencil or charcoal. This way of starting will result in uncertain and vague forms, looking less like the subject than a drawing made in simple flat tints. Not a good way to start.

Think “big” and your drawing will have that quality of bigness necessary for a complete work of art. The habit of working on one little part of a drawing and finishing that first, and then going on to another part is not likely to inculcate any aptitude for doing things expressing unity, agreement,

and harmony—all qualities which are essentially present in any composition to which the term “bigness” can be applied.

HINTS ON DRAWING THE CAST OF A HEAD

(SEE DIAGRAMS)

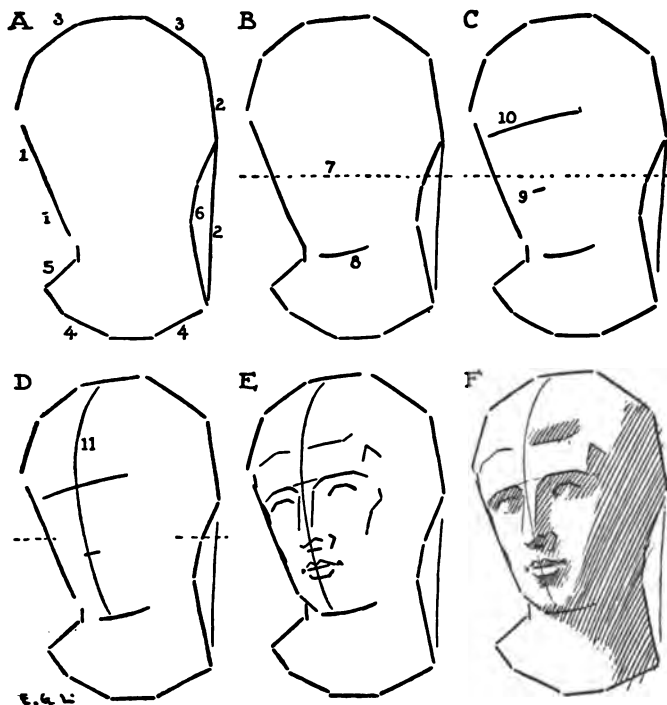
Sketch in the outline of the general mass of the head, in lightly drawn lines, simple and straight, rather than curved ones.

As it is not possible to make this whole contour in one single operation, it is important to know which of the lines forming it should be the first to be put down on the paper.

Now, the first line to draw is the longest, the most characteristic or prominent one. In all cases it should be the one that you think fits the above requirements. If you have made a mistake, you will find it out during the making of the drawing. This self-discovery will be of more educational value to you than if some one had told you of it.

The next line is that of secondary importance, following on to the third and then the fourth, and so on until the general contour is suggested. Keep the idea in mind that the lines are only suggested, drawing them lightly so that they can be erased and changed without difficulty.

When lines are vertical or horizontal it is easy



DRAWING A CAST.

CONSTRUCTIVE WORK ONLY.

- A.** Mark with lines at top and bottom intended size of drawing, then important lines 1 and 2 to indicate width of the drawing. Complete with lines 3 to 6.
- B.** Divide the height equally by line 7. Note that the bottom of the chin, line 8, is exactly in the middle of the lower section.
- C.** The base of the nose, line 9, is a trifle below the centre. The brows, marked by line 10, are easy to place as they are at the same distance from the base of the nose as that is from the bottom of the chin.
- D.** Getting the features "even" depends on the proper delineation of line 11.
- E.** Now indicate the features in simple lines, keeping in mind their position with reference to line 11.
- F.** With quickly drawn oblique lines, mass in the shadow side in an even tint. Now there is enough on your paper to show whether or not your constructive work warrants going on with the drawing.

enough to judge them; but when they slant it is an entirely different matter. The way to estimate the degree of the slant in any oblique line is to compare it with a line that can be readily judged; *i. e.*, a vertical or a horizontal one. As it is plainly apparent that a plumb-line is the simplest thing to use as an example of a vertical line, so it seems only natural to use one in testing degrees of inclination of oblique lines.

The great danger of a too frequent application of such a mechanical aid as the plumb-line is that its use may become a habit. It is so easy to hold up one to see how a particular line slants that a slothful practice may be formed of not depending upon yourself. Use a plumb-line if you wish, but remember that, sooner or later, your unaided eyes must be relied upon in judging slanting lines.

Sometimes it helps a little to hold up the pencil horizontally at arm's length—if you can hold it actually horizontal—and note the angle that the sloping lines make with the straight edge of the pencil. Or perhaps hold the pencil out and move it between your eye and the model as if tracing the direction of the line in the air. Getting the feeling of the line, this might be called. It will help in understanding the cast to make occasionally such invisible drawings in the air. It may look odd to a spectator to see you make mysterious gestures in

space, but what of it? The practice serves its purpose of giving you a better notion of the subject and making the pictorial rendering easier.

DRAWING FROM LIFE

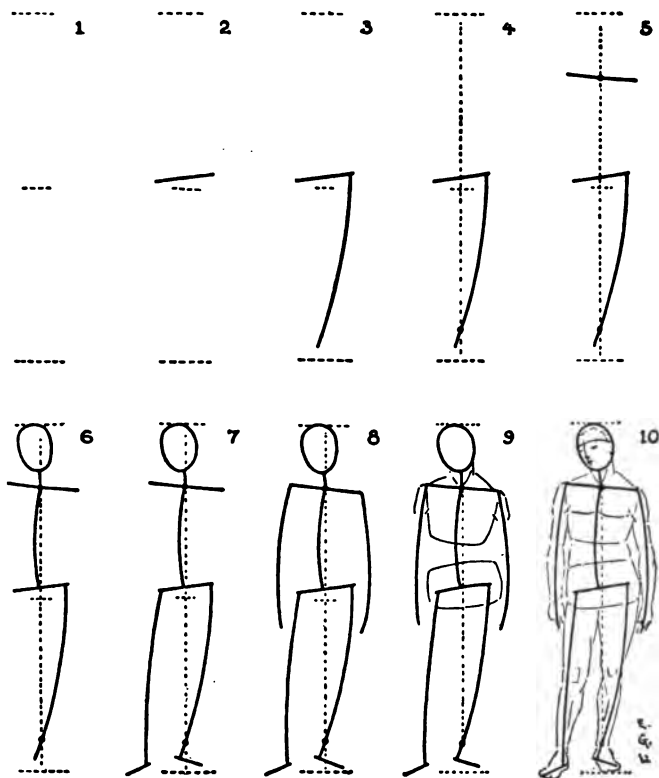
(SEE DIAGRAMS)

The usual pose of the life class model is a standing one in an easy attitude, the arms hanging by the sides or maybe one bent with the hand resting on the hip. Well and good; for the principles of drawing can best be imparted and grasped by the study of these simple standing poses. Many students are impatient and ill-content with such poses, and are constantly agitating to have the model placed in some "fancy" pose or one that can be utilized in a composition or some work that they have in mind. But one can never get enough of studying the simple standing poses to emphasize the importance of two things in drawing—first, movement, and second, getting the figure standing with the feet well placed on the floor.

Before starting a sketch from life, mark a line at the top and one at the bottom of the paper to show the limits within which you intend to keep the figure. Always do this. A trifling matter, it may seem, but it is best to train yourself to keep the size of the figure as you have determined on at the start.

Then, when in pictorial compositions the demands of perspective require that a figure be of a certain size, the doing of it will be much easier. If between the marks limiting the size of the figure any correction is needed, make it within the space marked. For instance, if you find that the legs are too short, do not lengthen your drawing, but make the body shorter.

Getting the proportions and making measurements are perplexing matters. Some advocate first marking off the classical or ideal height and constructing a figure to fit that. This may do when drawing a figure for some practical work. Others begin by first finding out the number of heads (7 or $7\frac{1}{2}$, as the case may be) that the model before them exhibits. They do this by arm-length measuring. It is done somewhat after this fashion: A pencil is held in the hand so that the thumb is free to move along its edge, the arm extended and the pencil held between the eye and the model. Now the two visual rays from the extremities of a length in question are measured on the pencil by seeing where they cut points on it—one point at the end of the pencil and the other along its edge which is fixed by placing the thumb there. This length is compared to some other similarly ascertained length. So that this way of going about it is in taking the size of the head, relatively, on the pencil and find-



STARTING A LIFE CLASS DRAWING.

FUNDAMENTAL CONSTRUCTION ONLY.

1. Mark top and bottom of figure and a line half-way between.
2. See where the widest part of the hips comes and indicate its slope.
3. Draw line of action of the supporting leg.
4. Draw a perpendicular line cutting through where the ankle will come.
5. Mark the position and slope of the shoulders. The centre of this line (head of sternum) will cut the perpendicular line.
6. Sketch the head, note especially its poise and that the line for the neck continues into the line for the movement or action of the body.
7. Indicate the action of the other leg. The sketch so far ought to give a suggestion of the general movement of the pose.
8. Draw the lines for the arms.
9. In beginning to outline the body note that the chest is a sort of bony box, and the region of the hips also a sort of box. The movement of the figure has a significant effect on the flexible part of the torso between the more or less fixed forms of chest and hips.
10. As you continue, keep in mind proportions and movement, and see that the figure stands with the feet well placed on the floor.

ing out how many times, arithmetically, it goes into the whole height of the figure.

In working this way, remember that it is absolutely necessary that the arm be extended the same length every time, and the pencil held exactly vertical. Again you must not move but hold yourself in the same position so that the eye is each time at the same level and at the same distance from the model. If it were possible to keep the head fixed like an automaton, the arms moving mechanically and the pencil in the same picture plane, or no change in its distance from the eye, this would be an excellent way of working.

But isn't it rather mechanical?

If the student wishes, he may try this pencil measuring. He will discover very soon, however, that after all the eye will be the best judge. How often will he find after a lot of careful "surveying" that his drawing doesn't look right anyway!

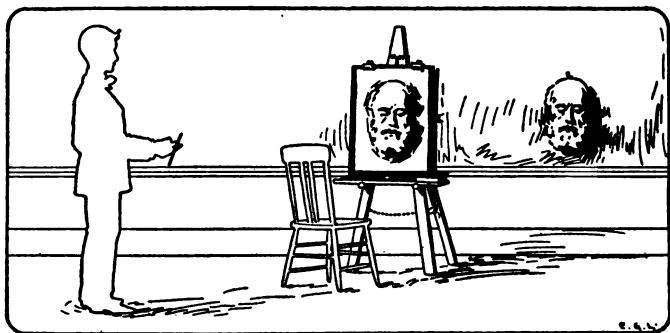
Learn to depend on your own eyes.

The best way of seeing what is wrong with your drawing is to step back from it a pace or two from time to time, letting critical glances go from the subject to the drawing and from the drawing to the subject. You will then see enough faults—so many, probably, that you will not know where to begin making the corrections.

Another good way in cast drawing, if it can be

arranged, is to place the drawing alongside of the subject and view the two from a distance or from the place where you are working.

To continue with the suggestions for drawing from life: After marking lines at the top and bottom for the height of the figure, make another line ex-



Step back a pace or two from your work; mistakes then will be quickly noted.

actly in the middle of this space. Then on the model see where the half-way point comes. This is often at the widest part of the hips. Indicate here with a line the axis of this widest part. Slant it the way you think it goes.

Before going on with the next stage of the drawing (*i. e.*, indicating the direction of the limbs and the movement in general of the whole figure) it would be well to give a few minutes' attention to the question of equilibrium.

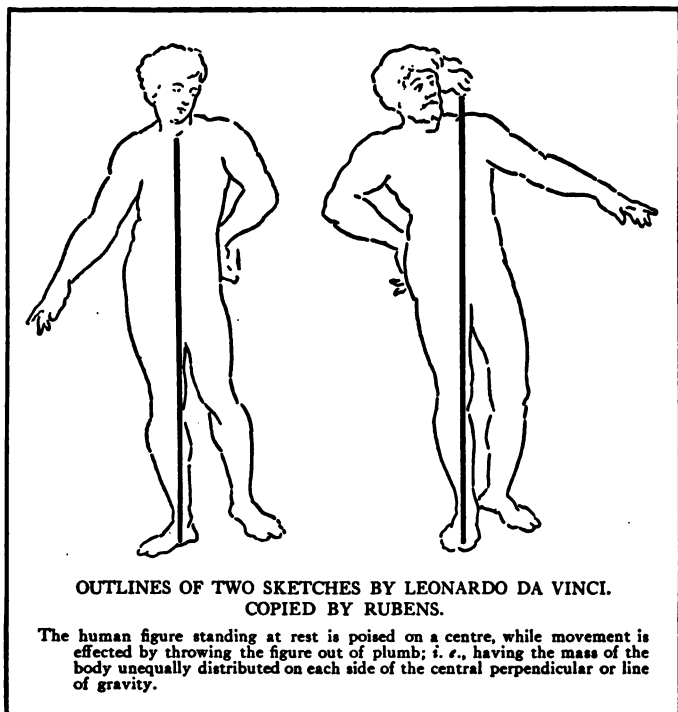
The centre of equilibrium of a figure at rest, with-

out leaning against or holding on to anything, is a perpendicular line cutting through the middle of the neck, and below near the floor, through the ankle of the supporting leg. At the neck, viewed from the front, this line begins at the top of the sternum or breast-bone, and at the ankle—of the supporting leg—cuts through the mass of the ankle bones.

When the figure leans against anything, is in action, or is falling, the line from the head of the sternum to the ankle is not perpendicular. A little experimenting in drawing a few single-line action figures will make this clear.

Since you now understand that a figure in an ordinary standing pose with the weight on one leg has these two points—in the neck and ankle—exactly at the ends of a vertical line, you should begin to observe that the swing, movement, or action (three terms used rather indiscriminately by artists) takes place between the two points. The poise of the head, to be sure, has an important share in this movement. The way it is held must be noted and drawn as part of the action.

You go on with the drawing, now, by sketching in the line of action of the supporting leg. It is not to be drawn as if following precisely the direction of the bones, nor will marking it as going through the exact centre of the fleshy mass always indicate it.



No, you must draw it as you feel it to be. And this knowledge will only be grasped and felt by thinking of the line as part of the movement of the whole figure.

In the same way, when drawing the line for the other leg, or any line for that matter, it must always be as you feel it should be. It is a question too enigmatical, too argumentative, for any one person

to insist on your seeing it his way. You must see, understand, and grasp the idea for yourself. If you have not succeeded here and have made a mistake, the result—poor drawing in the finished work—will betray it.

Remember this when drawing the figure: The chest and pelvic regions are two box-like forms; nearly fixed and unchanging on account of their bony structures. All movement that takes place in the torso is due to the flexible mass that connects them. When an arm moves, of course the muscles of the shoulder alter or modify somewhat this box outline.

And the folds of muscles of the thigh and those running to it vary the outline there a little in certain movements.

But remember these box-like forms.

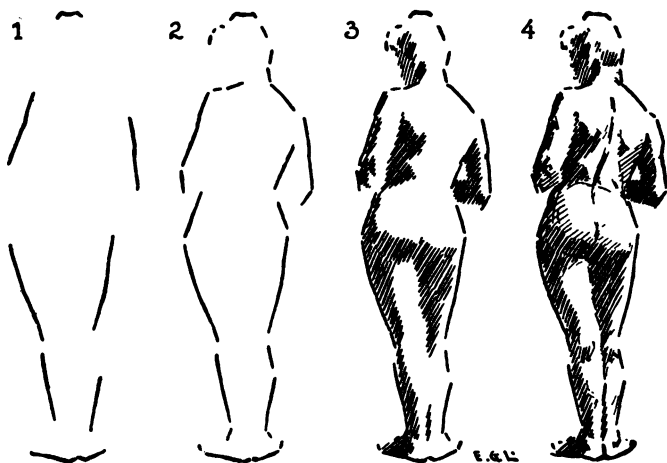
When drawing from life it is a good plan to put yourself in the same pose as the model; that is to say, imitate, as well as you can, the action, the disposition of the limbs and the poise of the head. This mimicry—it will only be that sometimes, as you will find that different persons have different ways of carrying themselves, and you can perhaps only approximate the pose of the model—will give you a better understanding of the pose and impress itself on you mentally and further the work of picturing it.

Note how, when the hips slant one way, the shoulders, to counterbalance it, incline the other way; and the head, again to preserve the balance, tilts away from the falling shoulder. This applies to the greater part of poses. Sometimes, though, models deviate from the general.

ANOTHER WAY OF STARTING A LIFE CLASS DRAWING (SEE DIAGRAMS)

Mark, as before, top and bottom lines to show intended size of the drawing. Encompass with your eye the whole figure at once. Look on it, mentally, as an area with nothing more than a geometric outline. Try to copy this as you would a simple plane form, employing only direct straight lines. Do not regard the minute curves of the form now. Then without delay, and as rapidly as you can, put in the mass of shadow. Follow the pattern of the shadow areas as exactly as possible. Work quickly, because there are more important matters than exact shapes of shadow masses to be looked to first; namely, the pose, action of the figure, and the direction of the limbs, especially that of the supporting leg. After this has been attended to, more attention can be given to the patterns of the shadow masses.

This way of drawing, in merely imitating the



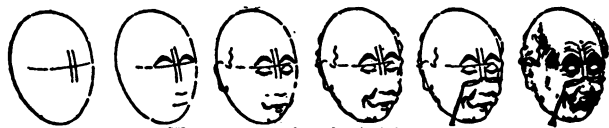
ANOTHER WAY OF STARTING A LIFE CLASS DRAWING

- 1-2. After marking the height that the figure is to be, copy, in as few lines as you can, the contour defining the silhouette of the figure.
3. Next put in the principal dark masses, define their pattern as precisely as possible while working quickly.
4. Now note the general movement, the poise of the head, how set on the neck, and the neck to the body. Get the feeling, or show that you understand the movement—the line running from the head to the neck, body, and through the weight-bearing or supporting leg. Make certain that the figure is standing and then begin to define the shadows more accurately. If satisfied with your work so far, go on with the drawing.

differently sized and shaped areas of dark shades, middle tints, and high lights, if carried too far, is somewhat like copying the pattern of a rug. It is, nevertheless, an excellent way of working if you can keep in mind that it is "life" that you are drawing. In going about drawing in this way, and carrying it to extremes, there is a likelihood of the artist becoming nothing but a copyist and looking on the subject as merely a collection of variously

formed and tinted patterns, and forgetting the signification of movement, proportions, and character.

However, in some unusual poses of the model, this way is useful if combined with the first method advised, in which the figure is built on a simple framework expressive of action, movement, and general proportions.



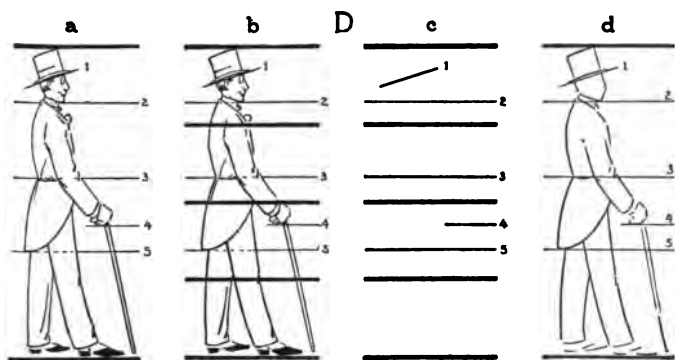
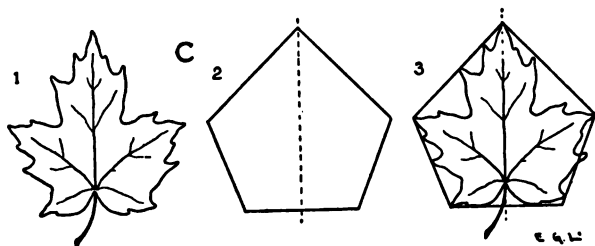
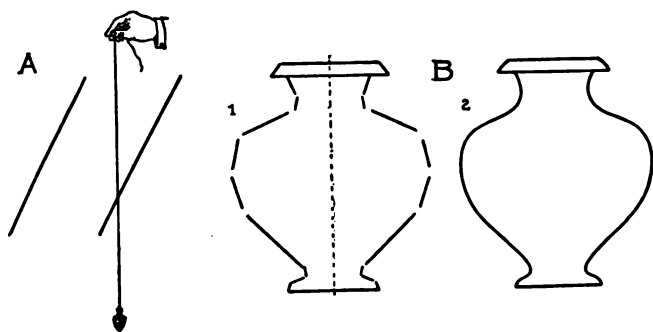
Thumb-nail sketching

METHODS IN DRAWING GRAPHICALLY EXPLAINED.

(See plate on opposite page.)

- A.* By itself, the inclination of an oblique line is hard to perceive. Compare it with a vertical line, then the angle so formed will show the degree of inclination at once. Use a plumb-line.
 - B.* The subtleties of curves are better discerned and drawn by first roughing them out with straight lines.
 - C.* The shape of an incomplex plane form is easy to grasp. In drawing anything of an irregular or an intricate contour see what simple plane form approximates it, or can enclose it. Draw that first.
 - D.* A number of spaces of unequal length are hard to get offhand. Equal lengths are much more easily estimated, marked, or drawn. For instance, you want to see where a certain point comes between two other points. Divide the space with your mental eye into half, then see where the point in question comes in relation to the half-way point.
- In *D* (*a*), lines 1 to 5, inclusive, mark places and divisions that would be helpful in starting this sketch; but the divisions are unequal and not determined readily.
- (*b*). As equidistant measurements are easily discerned, perceived, and obtained, divide the height of the figure into four equal parts.
 - (*c*). Now the positions of the lines 1 to 5, inclusive, are quickly fixed, so that in:
 - (*d*). You can go on with the sketch.

Do all this mentally; the diagram is only an attempt to explain the matter.



METHODS IN DRAWING GRAPHICALLY EXPLAINED.

**PROPORTIONS OF THE HUMAN
FIGURE AND DRAWING
WITHOUT MODELS**

II

PROPORTIONS OF THE HUMAN FIGURE AND DRAWING WITHOUT MODELS

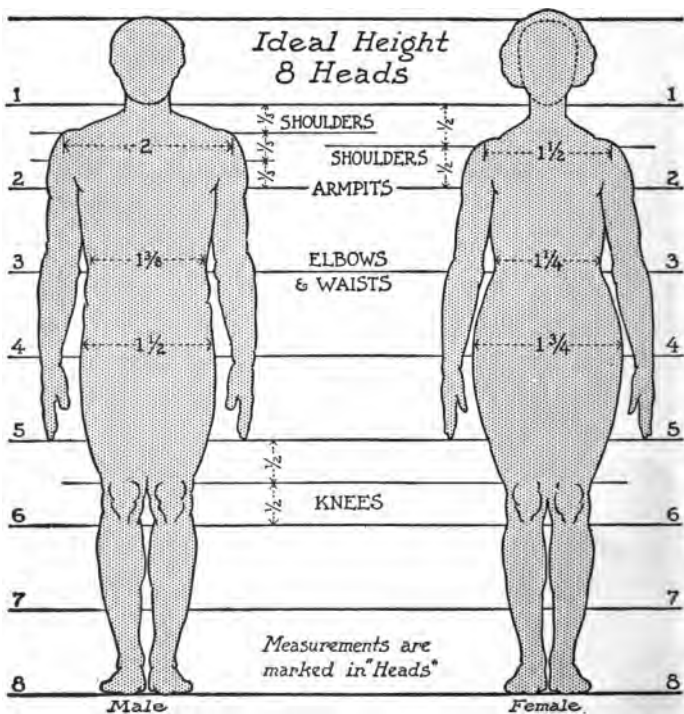
FOR practical work from models, or drawing the figure without their use, the artist keeps in mind some sort of proportional division of the figure for guidance in getting an agreement in his drawing.

The proportional quantities of the artistic scale of the human figure are given in "heads," established by taking the height of the head as a unit and seeing how many times it goes into the whole height of the figure.

Opinions have differed as to the number of heads to reckon for the perfectly constructed figure. Vitruvius has given the scale of eight heads; while Vasari and Filarete both said that a harmonious accord of the human form is attained by building it on a scale of nine heads.

Some old engravings by Aldegrever show figures that are drawn nearly ten heads high, actually

outrivalling modern fashion-plates, which are rarely drawn to exceed nine heads.



PROPORTIONS OF THE HUMAN FIGURE.

The classical proportion of eight heads is the scale in general usage; although, in actuality, figures are more likely to be seven or seven and one-half heads. Figures made in these latter proportions,

in ordinary picturing, look correct; but in idealistic compositions and in drawings in which dignity, grandeur, or the heroic are to be expressed, the classical canon of eight heads is better.

Very careful measurements for an ideal human form have been worked out—widths such as those of the calf, the knee, thigh, neck, and so on; but as a rule it is not necessary for drawing that the artist should burden his memory with such details. To do so is more likely to lead to confusion than to aid. Trying to remember and to work by the minor measurements may prevent the exercise of good judgment and the æsthetic sense.

Even if what are thought to be accurate measurements could be taken, the words “approximate” and “about” would always have to be tagged on anyway. For the lack of hard fixed points and the flabby nature of the muscle and skin make it impossible to get dependable points from which to measure.

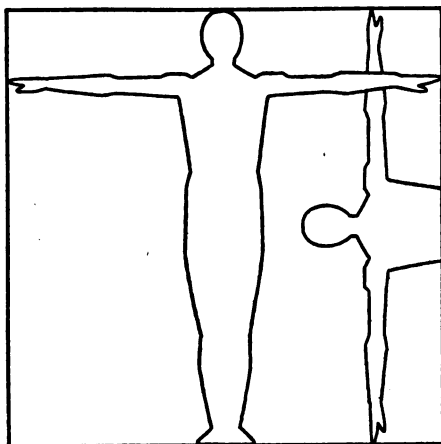
It is only essential to remember a few general ideas of symmetry, such as:

	Heads
Entire figure.	8
Head and body.	4
Lower limbs.	4
Leg, top of knee to base of heel.	2½

When the arm is hanging by the side the elbow is on a level with the waist, and the tips of the fingers reach to about the middle of the thigh.

The vertical measurements for the female figure are usually calculated as above; the proportions across varying—generally smaller, excepting the hips. Here the width is $1\frac{3}{4}$ or, perhaps, 2 heads.

According to an ideal model of human proportion, the span of a man's extended arms exactly equals his height. This is not often found in nature.



In an ideal figure the span of the extended arms and the height are equal.

The arms are generally too long to comply with this test of physical perfection.

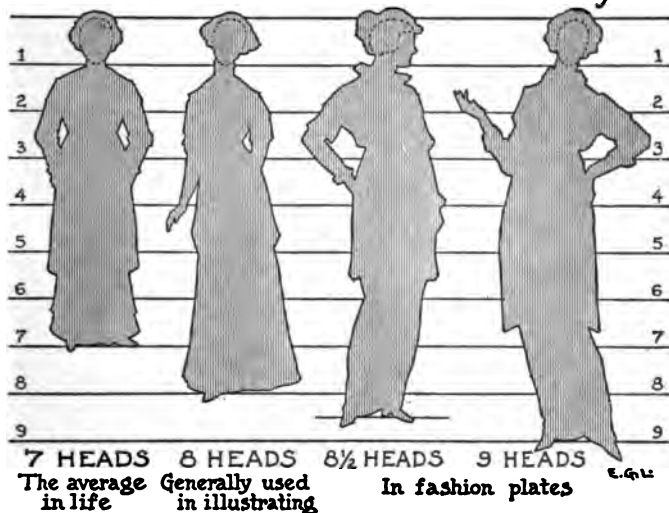
Keeping the above proportions in mind when drawing figures is on the whole acting with sound artistic judgment.

Such minor matters as relative thickness of neck and sizes of hands or feet depend on the subject, type, or character to be depicted.

Some sort of a relative proportion of head to entire figure should be kept in view when the artist is drawing without models. When making what

are known as "straight" illustrations, that is, pictures in which models are used and the human form is represented with as much faithfulness as possible to life, the scale of $7\frac{1}{2}$ or 8 heads is employed.

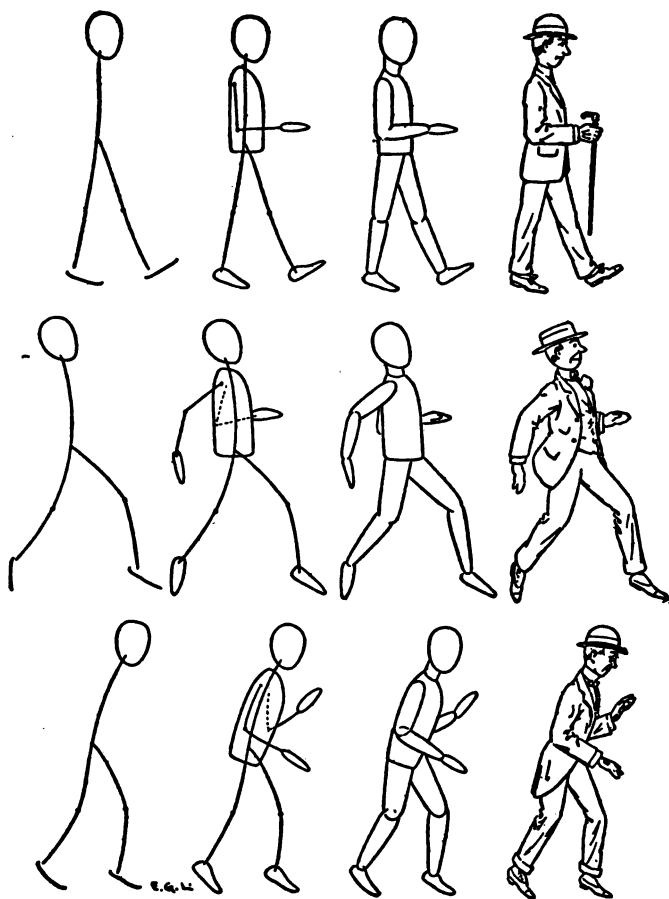
Proportions of the Female Figure In Actual Life and Pictorially



On the other hand, most of the humoristic draftsmen and cartoonists make figures proportioned in no possible semblance to the normal.

Drawing figures in action or "out of one's head," is done somewhat in this wise:

Make a single line sketch of the action wanted



PROGRESSIVE STEPS IN FIGURE-DRAWING WITHOUT USING MODELS.

with just enough drawing to give the character of the desired action or movement. Draw an oval-

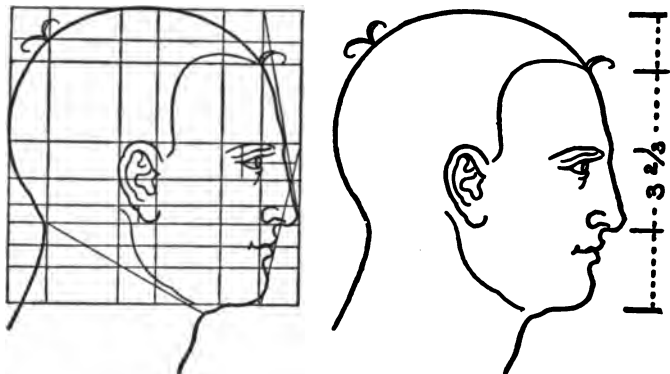
Figure Drawing Without the Use of Models - The Framework -



E. G. L.

like contour for the head, keep in mind its relative size to the intended figure height, indicate the body, and then suggest the general outline of the muscular form. This, so to speak, is filling out the skeletonized action figures with flesh. Proceed with the drawing by covering the figure with apparel.

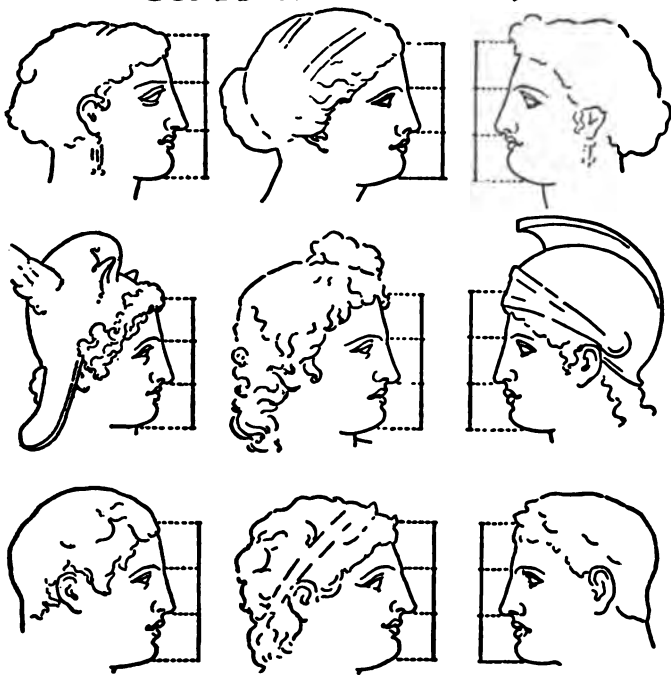
You will note in the diagrams explaining the method given above, that the body is shown as a firm, inflexible torso. It is not always that way. You can see in the next engraving a method which explains perhaps a little better how to go about



IDEAL MALE HEAD AS PROPORTIONED BY DÜRER AND THE SAME HEAD WITHOUT THE NETWORK OF LINES.

drawing the figure without models. Allowance is made here for the flexibility of that part of the torso between the box-like chest and the box-like hips. The sketches in the engraving were made with the aid of a little manikin about 12 inches high. The head, chest, etc., were whittled out of wood and joined by pieces of lead wire to represent the limbs, neck, and spine.

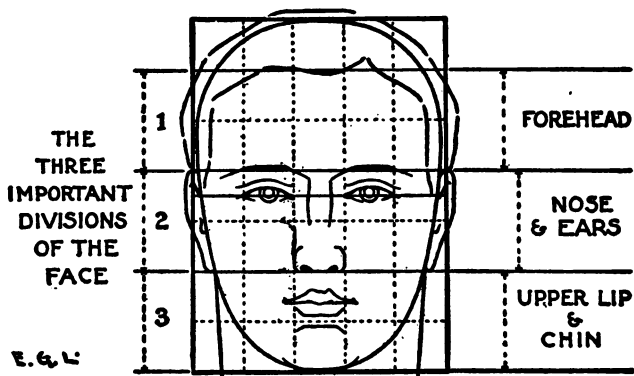
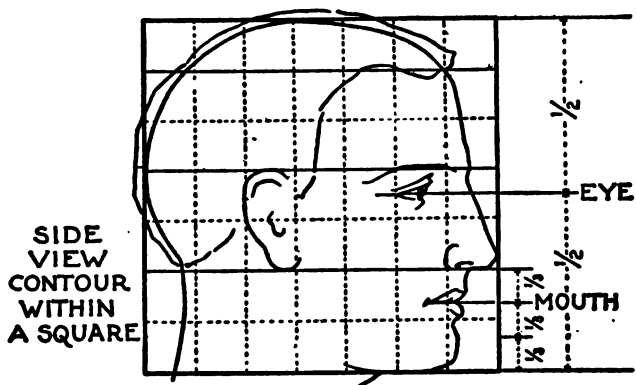
It might repay the student to construct one of these manikins; the mere making of it will perhaps

Classical Profiles

From statuary, reliefs and coins

impress on the mind the litness of the human body and the multiplicity of attitudes it can assume. It will not be of much use as a lay figure to set up and draw; but it may give suggestions in cartoon and comic drawings for unusual poses and actions.

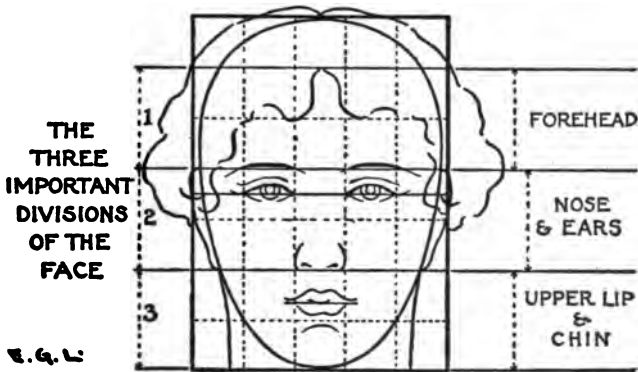
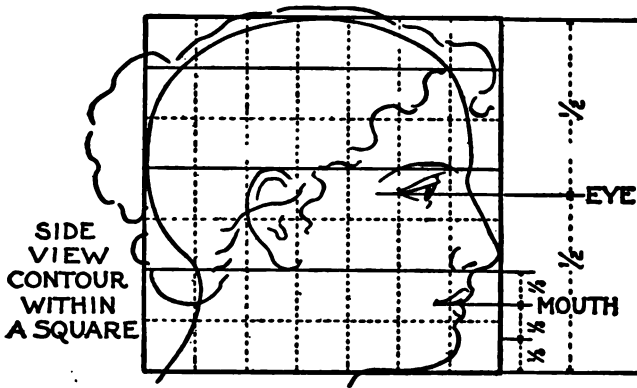
Passing now to the consideration of the face and head, these three things should be noted first:



PROPORTIONS OF THE HEAD AND FACE

A

The axes of the eyes coincide with the centre of the space between the top of the head and the bottom of the chin.



PROPORTIONS OF THE HEAD AND FACE.

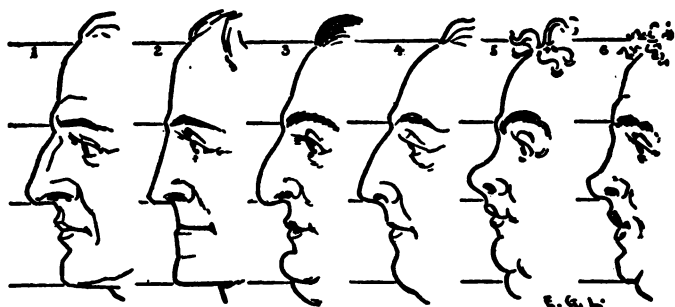
B

A square encloses the side view of the head.

C

The face is divided equally into three parts:

- (1) From the roots of the hair to the eyebrows.
 (2) From the eyebrows to the base of the nose.
 This division is referred to as the length of the nose, and is sometimes used as a unit of measurement.



No matter what type of face you draw, keep in mind the ideal division of the face into three equal parts.

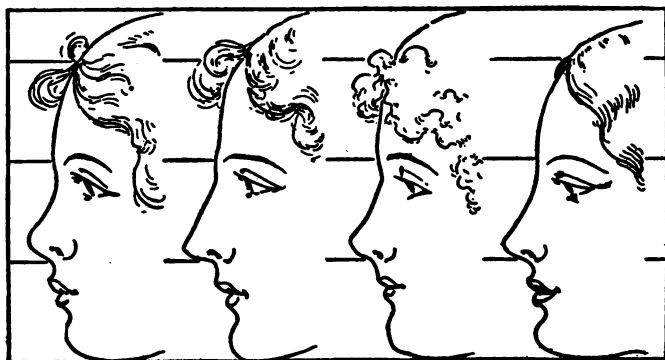
- (3) From the base of the nose to the bottom of the chin.

The above points, *A*, *B*, *C*, with that important matter of getting the ears properly placed with relation to the middle division of the face, are the things to be especially remembered in drawing faces.

Other details are the following:

If the lower division of the face is divided equally into three, the middle of the mouth comes at the line of the first division, or one-third down. Note this in both front and profile views.

Looked at from the front, the width of an eye,



E.G.L.

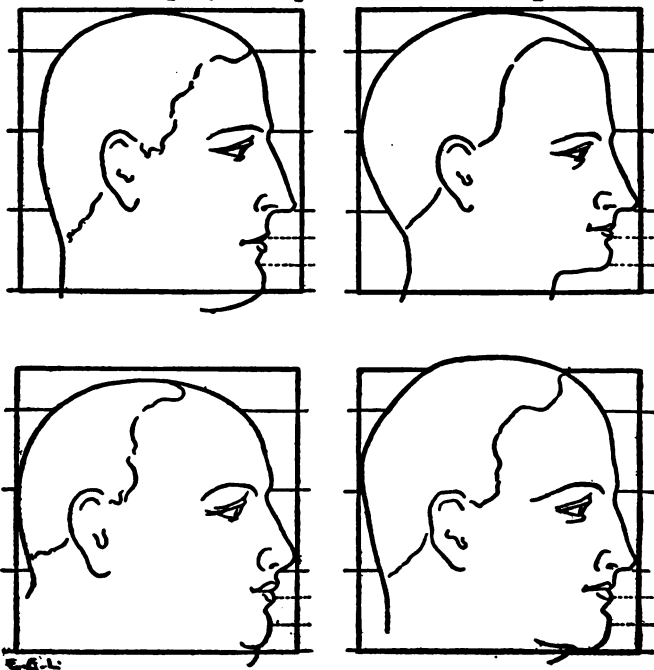
PROFILES DIFFERING IN CHARACTER, YET KEEPING TO THE IDEAL DIVISION OF THE FACE INTO THREE EQUAL PARTS.

the width between the eyes, and the width of the nostrils are all the same. And this measurement, considered as a unit, is one-seventh the height of the head or about one-fifth its width.

The position of the ear is best understood by

considering it as viewed in a profile head. It should be so placed that a line from the top of the ear to the eyebrow or the root of the nose, is parallel to a

Deviations from the Square-Enclosed Profile Head

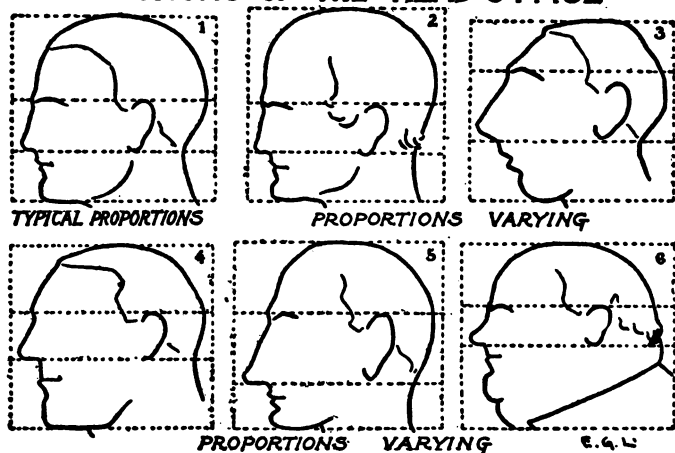


line running from the lower edge of the ear to the base of the nose. In other words, the ear is on the same level and is the same length as the nose. These two parallel lines define the middle division

of the face as noted above. Exceptions to and deviations from this rule will constantly come under your observation, and there will be many, too, that you will not see, for the ear is often hidden by the hair.

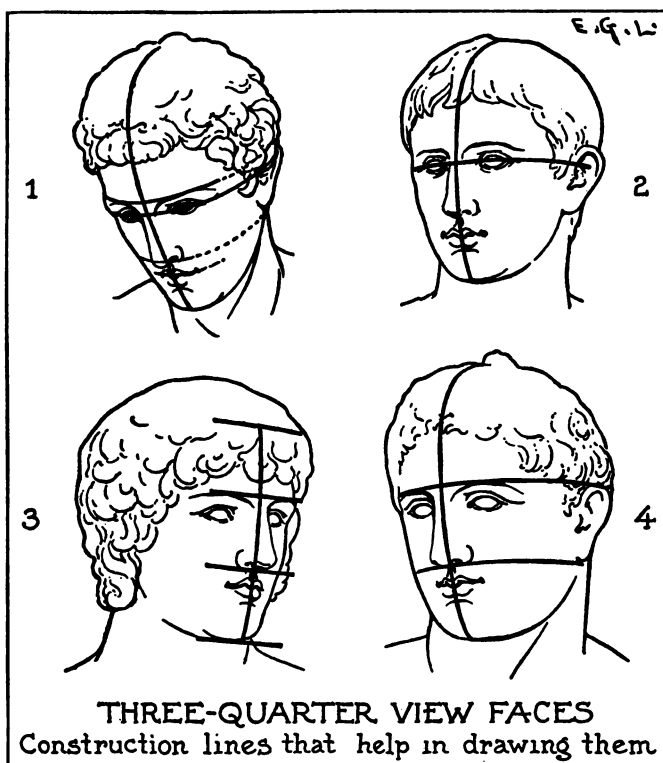
Being mindful of the above-mentioned symmet-

DIVISIONS OF THE HEAD & FACE



rical relationship of the features will help when drawing faces, whether from models or without them.

An effective way when drawing faces without actual visages before you is to use in constructing them the lines that are used in defining the proportions. These construction or guide lines, or some of them, are of especial help in faces and heads that are to be drawn in three-quarter views.



Three-quarter view faces are rather hard to draw. The American artist, Rembrandt Peale (1778–1860), suggests that the features be drawn on an egg—he recommends a hard-boiled one—and then using it as a model for getting a variety of views by turning it around at different angles.

If you have any ability in the plastic art, it might

be a good plan to model a little head for use as a copy. Such a head would be a great aid if you were making a series of illustrations (not using models) in which the same character appeared throughout the series.

CHARCOAL AND CRAYON DRAWING

III

CHARCOAL AND CRAYON DRAWING

WORKING with charcoal, or fusain, on a special paper for the purpose, is the generally accepted method for the beginner in drawing when he gets down to serious study from casts or life. It holds its superiority as a medium for the student on account of the ease with which the materials can be managed.

Conté crayon and crayon sauce are also enlisted in the service of art instruction. Their use is especially recommended in elementary work from casts.

Four of the principal makes of charcoal paper are as follows:

Lalanne,
Michallet,
Ingres,
Allongé.

There are other kinds, too, all good. The beginner need not be too solicitous about which one he should use; when he becomes proficient in handling the charcoal and the few requisite tools, his artistic

liking will decide for him what particular make is best adapted to his way of working.

The above papers can be used for either charcoal or crayon, but are the preference for charcoal. A paper with a smoother surface is commonly employed for crayon or crayon sauce drawing.

The side of the paper on which to make the drawing is ascertained by holding it up to the light. When you have it held so that the water-marked name reads correctly—that is to say, not backward—the side that then faces you is the right one for drawing.

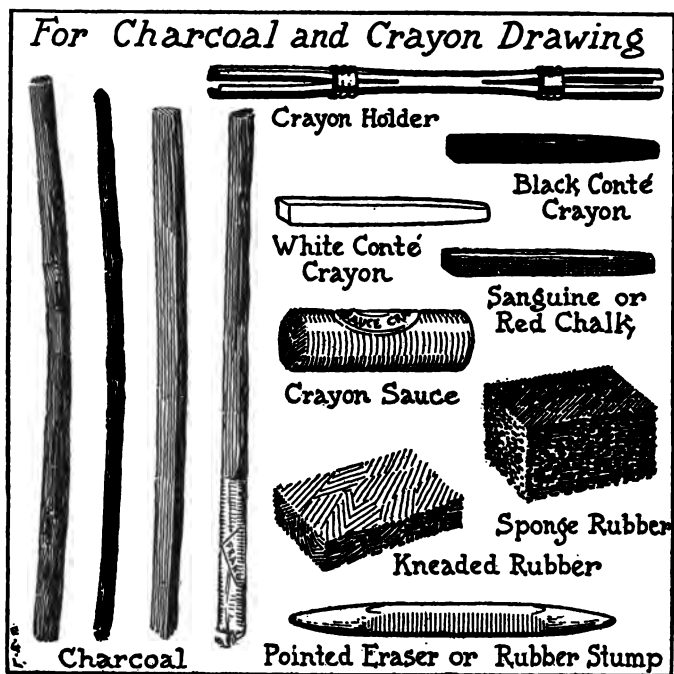
Charcoal is made in various degrees of softness and hardness. The soft kind makes the deepest black lines, while the hardest grade marks somewhat grayish lines. There are a number of makes, among them:

Conté,
Rouget,
Berville,
Russian.

There is an “ordinary quality” which comes in bundles of fifty, and which, perhaps, is the best kind for the student at the start. Later on he can try—and appreciate—the better grades. He will then find, too, that particular quality of charcoal best suited to his hand and individuality.

First comes, of course, in starting work, the pre-

paratory blocking-out of the subject and a suggestion of the shadow masses. This has been explained in the chapter on "beginning to draw."



When the principal shadows have been put in roughly by quickly drawn parallel oblique lines, they should be smoothed over with the tip of the finger or, if you prefer it, a large chamois stump. This first shadow mass that you have blocked out

and smoothed over should represent a degree of tint between the darkest and the lightest. That is, approximately the half-tint, or what you think the half-tint to be.

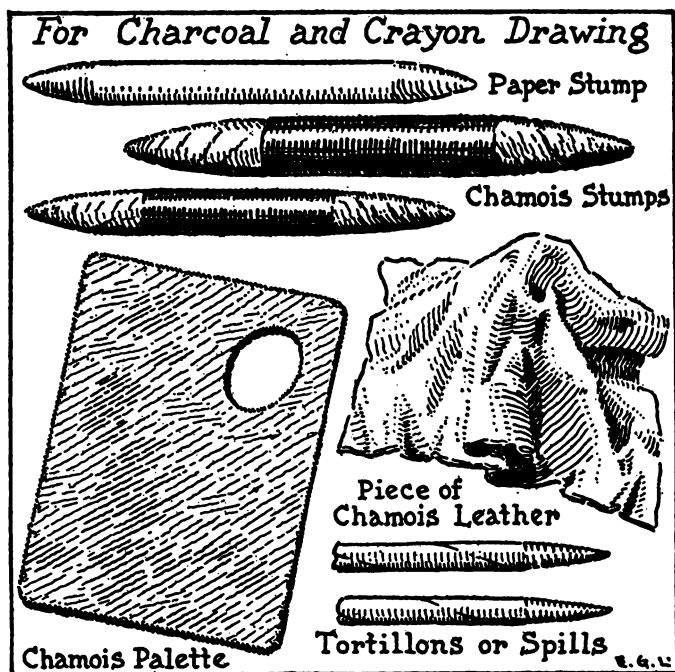
The whole idea is to have something to start with, on which to build your drawing.

Now you proceed with your work by darkening where you think it should be darker and lightening the tints where you think they need it.

Some commence the shading by making with the charcoal point sketchy lines with a back-and-forth movement of the hand, and then massing this in an even tint with their finger-tips, a piece of chamois, or a large stump. Others work more deliberately in making a series of parallel oblique lines, which they smooth over evenly. Then, again, others produce tints with charcoal dust. To do this, they rub a bit of soft charcoal to powder on a scrap of paper or a stumping palette. This latter article can very conveniently be held in the left hand while working.

A broad expanse of tone can be obtained by the use of a rag. The rag is folded over the ends of two fingers, care being taken that it is not wrinkled, then used to spread pulverized charcoal in a uniform tint over the paper. The rag can also be used in lightening a tint that is too dark, or in smoothing over and taking out inequalities of a tone.

Another method is to cover the whole surface of the paper with an even shade of charcoal, then going on with the drawing, putting in darker tints



and taking out any lighter ones with a piece of chamois or kneaded rubber. Some become very skilful in this method and handle the materials with great facility. It is a good way to work where the subject or model is under a strong effect of

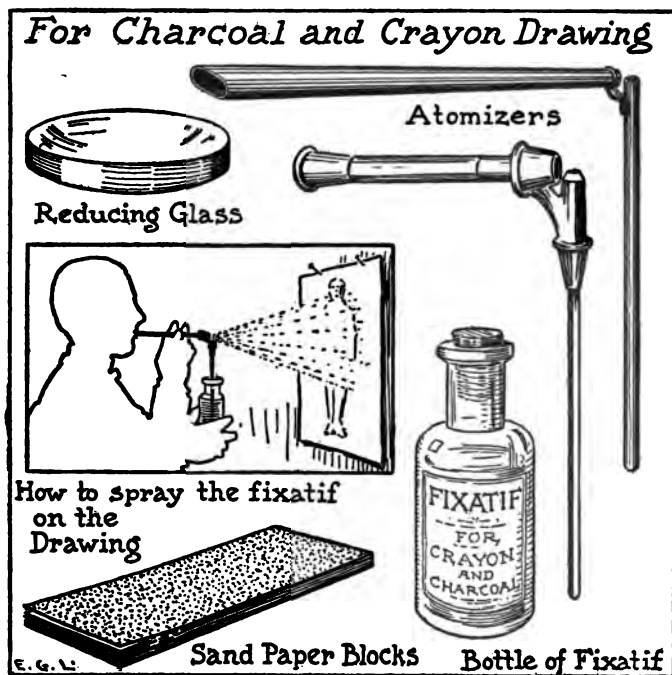
artificial light. This way, of cutting out lighter tints and high lights from a general tone previously spread over the whole paper, results in strong, forcible drawings. A practical plan for working this way is to indicate the drawing first, then spread the general tone over the paper, outlines of the first drawing and all. The markings of the preliminary outlines will show through the tone just sufficiently to enable you to go on with the drawing if you have emphasized them with very hard charcoal.

A clean piece of chamois is employed in lightening tints, and white spots or nearly white tones are obtained by the use of a pellet of bread or the kneaded rubber.

Kneaded rubber is especially serviceable and a convenient article. For the high lights and where sharply defined outlines are required the hard-pointed rubber is best. This article, however, must not be brought into use until well toward the finishing of the drawing, as much rubbing with it destroys the surface of the paper and will cause subsequent working with the charcoal or crayon over the rubbed-out spots to result in uneven tints.

Charcoal sticks are pointed by strokes of the knife-blade exactly opposite to those employed in sharpening a lead pencil; to wit, from the point backward. But the most practical way of sharpening charcoal is by the use of sandpaper. This comes

in the form of little blocks consisting of pieces of the paper glued together at their edges. You can get them in any artist's supply shop. They can also



be used in pointing crayons and pencil leads. The dust from sharpening charcoal sticks should be saved for spreading tints over the paper with rags or stumps.

A large area of charcoal tint or a background

that is too dark can be lightened a little by the use of a sponge rubber. The soiled margins of the paper can also be cleaned with this rubber.

The water-mark lines in certain kinds of charcoal paper, which are sometimes very evident in finished work, are not considered detrimental to a drawing. For the crayon, especially when studying from casts, a special crayon paper is preferable. This paper has not that roughness of surface characteristic of the charcoal papers; but is grained uniformly and gives smooth, unbroken tones that render successfully the transparency of the shadows in a plaster cast.

Tinted papers—gray and light blue are best—both for charcoal and crayon can be used for certain subjects. The tint of the paper takes the place of the half-tint, and white crayon is used to get still lighter tones and the high lights.

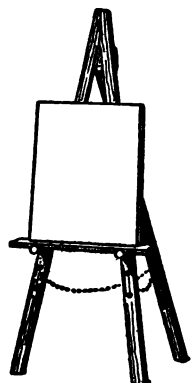
For fine crayon work a special paper mounted on muslin is stretched taut on a frame or strainers.

To prevent finished charcoal and crayon drawings from getting smudged they must be "fixed." To accomplish this, fixative is sprayed on the face of the drawing with an atomizer. When the paper has been mounted on a frame, the fixative is sometimes applied to the back with a flat brush. The general way, though, is that of applying it directly to the face of the drawing.

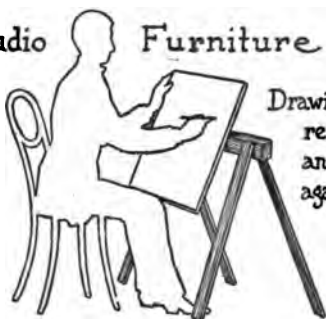
You can prepare the fixative yourself with shellac

and pure alcohol; but care must be taken not to get the mixture of a yellowish tinge, or it will discolor the drawing. To obviate any such occurrence

Simple Studio Furniture



Plain folding easel

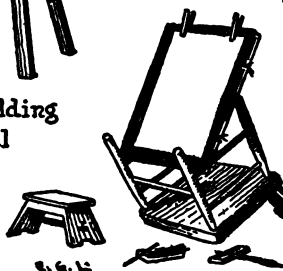


Drawing-board resting on knees and leaning against a trestle

Straight-back chair as an easel



Chair turned over holding portfolio — paper held fast by clips



you had better get it all prepared from the shop. Most of the atomizers are made with the two parts of which they are constructed hinged. It is necessary when using one always to hold the two parts bent at the correct angle. But you can get kinds made with the tubes fixed at the required angle.

To use the atomizer: Place the small tube into the bottle of the fixative and blow into the other—the one with the mouthpiece. Now, if you have blown with just the right amount of force and the tubes have been held at the proper angle, one to the other, the result will be a fine spray of the vaporized liquid. You must be careful in placing yourself at the correct distance from the drawing, which has been previously pinned to hang vertically on the wall or an upright board. If you get too close to the drawing, instead of a fine vapor, drops of fixative will gather and run down the surface of the paper. Just one little splotch with a track of the trickling liquid will, of course, ruin your drawing. This can be easily avoided by first getting the right distance by trying the operation on the board alongside of the drawing. Be sure to clean out the atomizer after using, as any fixative left in the small tube, in drying, will cause it to become clogged. To prevent this blow water through it immediately after using.

Drawings for reproduction by the photo-engraving processes can be made with charcoal or crayon. If they are intended for the ordinary line or zinc engraving they must not be rubbed over. It is important to remember this. The lines or markings are not to be smoothed over with the chamois or stumps, as the depressions in the roughly grained paper must show a clear white. Exactly as in pen-

and-ink, the requirements are that black marks and lines be of an intense black and not of a grayish appearance.

For the half-tone process you need not trouble about the blackness of the markings, but see to it that you produce, with all the artistic skill at your command, a drawing distinguished by good and artistic contrasts. Often a drawing started with charcoal, if washed in with monochrome, results in an effective composition, giving a soft blending of shades and pleasing contrasting tones.

THINGS NEEDED IN CHARCOAL AND CRAYON DRAWING

Charcoal.

Black crayon.

Crayon sauce, or velours à sauce. Comes in vials or wrapped in foil.

Paper, charcoal and crayon.

Crayon holders, or porte-crayons.

Rags, to spread tints over large areas.

Chamois leather.

Stumps, of chamois, large paper ones, and of cork. To smooth tints, and carry crayon sauce from the chamois palette to the drawing.

Tortillons, or spills. Small paper stumps for detail, etc. They come in bundles of fifty.

Kneaded rubber, an indispensable article for making changes, lightening tints, etc. It can be pushed into a point and used to sharpen outlines or details. It has practically taken the place of bread which was formerly used in charcoal work.

Pointed eraser, or rubber stump to take out high lights.

Chamois palette, to hold the crayon sauce.

Reducing glass or lens. One about two inches in diameter.

Examine your drawing with it from time to time. Values not in keeping show out very conspicuously when viewed through it.

White Conté crayon, for high lights when tinted paper is used.

In working on white paper learn so to manage your material that the white paper will represent the high lights.

Sponge rubber.

Lithographic, or wax crayon, to get a jet black. But remember it cannot be erased.

Fixative. An excellent quality comes prepared. But if you wish to make it yourself, dissolve dry white shellac in pure alcohol.

Atomizers.

Sanguine, or red chalk. Makes very effective sketches, especially if the lines are not smoothed over into tints.

Blocks of sandpaper to sharpen the charcoal or crayons.

Easels.

Portfolio. One 20 by 26 inches is the exact size for holding the sheets of charcoal paper. Instead of a board, a portfolio of this size will answer. The paper is fastened at the top by wooden or metal spring clips.

WATER-COLOR PAINTING

IV

WATER-COLOR PAINTING

THERE are, whether effected in colors or simply in monochrome, two kinds of water-color painting; namely:

(1) Pure water-color, in which the washes are kept transparent and unmixed with white; the paper left for the high lights and not painted in with white. Neither is this pigment combined with any other to obtain lighter tints or hues.

(2) Opaque body-color, in which a certain amount of white is mixed with some or all of the paints to give them "body" or density.

Purists and sticklers for formula and tradition insist that mixing the pigments with nothing else but water and working in clear washes as the only true water-color painting. They barely forgive the slightest afterthought or correction touched up with white or a color blended by white.

Working in pure transparent washes, however, is much the better way when studying from a model or in landscape sketching, as it inculcates, if not

the habit of getting, at least the habit of trying to get, the correct shade or hue in the first wash. In body-color, one can too easily change or lighten any part that has been made darker than it should be.

The hints in this chapter are chiefly applicable to the making of monotint drawings for process reproduction.

For practical work and general illustrating, body-color is the method most often used, as it allows more freedom and gives plenty of scope to the artist's individual way of handling and using pigment and brushes.

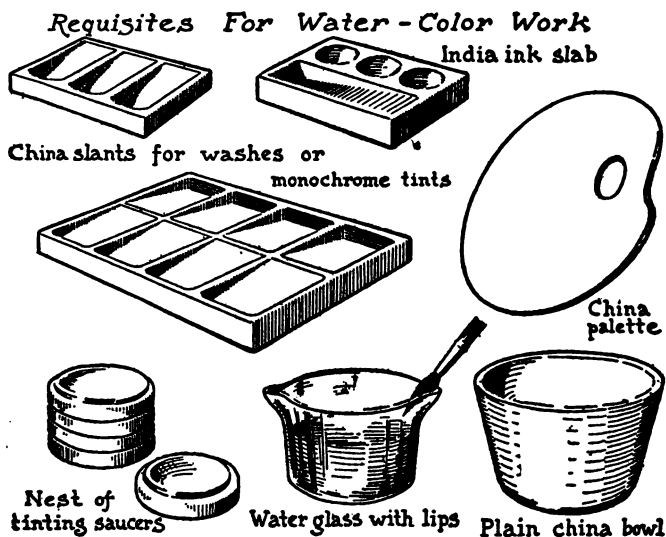
In distemper, a kind of water-color, the differently tinted dry colors are mixed, unless they are themselves very opaque, with a certain proportion of white together with water and a size or some adhesive vehicle. This is the method employed in scene-painting and sometimes interior decorating. It was the ancient way of painting easel and panel pictures.

Now the kind of water-color painting that interests the illustrator mostly is that of simply mixing the colors with some white, or perhaps using the pigments just as they come in the tubes, pans, or jars, and adding white only where needed or desired during the course of making the drawing. This method allows for the most part, the same freedom of handling as oil painting. The artist can give to

his brush strokes as great a degree of crispness and vigor as he chooses.

The black pigments universally used in illustrating are:

(1) India or Chinese ink in sticks, the best thing to use where clear transparent washes are desired.



The ink must be rubbed up in a little saucer or a china slant. One of the latter articles with depressions or wells to hold the graduated tints is serviceable.

(2) Ivory black. A brownishness of the washes is the peculiar property of this pigment. Produces

deep, rich blacks. Some prefer this of all the black paints.

(3) Lampblack. This does not have the suggestion of brown in the pale washes. It is liked by many on account of the facility with which large areas of light tints can be washed in, and also because a tint, if too dark, can almost be sponged off without much harm to the texture of the paper.

Ivory black and lampblack are both used for combining with white in body-color work. Some prefer one and some the other. Soluble liquid drawing-ink is also employed in wash-drawing.

There is one point to which the artist working for the half-tone process must be attentive; and that is to guard against getting his blended tints of white and black of a bluish tone. In a drawing made with any of the black pigments where the tints are produced by mixing with water only, the sequence of washes from the lightest to the darkest appear to the camera's eye the same as they do to ours. That is to say, the relationship of the varying tints, one to the other, will come out in the engraving pretty much as they are in the drawing. But if a white pigment is added to the black mixture, the result will be a gray of a bluish tone.

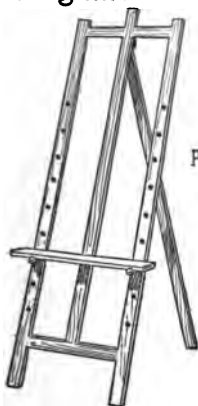
Now, in photography, as is well known, compared to the influence of rays from yellow, brown, or red, the blue rays have an exaggerated effect on a sensi-

tized plate, so that a resulting process reproduction of a sketch with bluish grays in it does not interpret the values correctly.

This disparity, again, is strongly emphasized in that most washes of black are brown in tone, so

Easels

For general work,



For water-color painting



For oil painting



that, when blue-gray is laid against them, there will be altogether different photographic values produced. In other words, you will be greatly disappointed in seeing that brush strokes that you took such care, as you thought, in getting in the right value, have not come out as you intended.

Of course, drawing, composition, and technical skill are all required in turning out acceptable illus-

trations for the engraver; but in the matter of technique the thing to watch is getting all the grays relatively in value and not having several different kinds of grays in the same drawing. One way to avoid this bluishness of the grays is to add a touch of brown with the white and the black. Bistre is an excellent medium for this purpose. Sepia or Vandyke brown can also be mixed with the grays to neutralize them.

These latter pigments can also be used in making very pleasing monotint drawings.

MATERIALS FOR MONOCHROME WATER-COLOR PAINTING

Lampblack.

Ivory black.

Chinese white to mix with other pigments.

Process whites, to mix with the blacks and to get pure whites in the reproduction.

India or Chinese ink in sticks.

Charcoal gray.

Soluble liquid drawing-ink.

Sepia.

Bistre.

Vandyke brown.

China slabs and slants to rub up the sticks of India ink.

Tinting saucers in sets. Little butter-plates and small bowls in ordinary chinaware are likely to answer the purpose of containers for tints and mixed pigments.

Receptacles to hold water. One of glass with lips on the rim formed so as to take out the surplus water from the brush.

An ordinary china bowl can also be used.

Palette knife.

Brushes, of red sable with wooden handles and metal ferrules, or either red sable or camel's-hair in quills. Large wash brushes of Siberian or camel's-hair.

Sponge, to moisten the paper and prepare it for the washes after the surface has been slightly impaired by the preliminary drawing with the pencil or charcoal.

Surfaces: The standard water-color papers, such as Whatman's, come in three kinds of surfaces.

(1) Hot-pressed, with a very smooth surface. Can be used for pen work.

(2) Not hot-pressed, medium with a slight grain.

(3) Not hot-pressed, rough with a coarse grain.

Illustration boards. Stout cardboard mounted with a medium-grained paper.

Other good water-color surfaces can be made by mounting charcoal, tinted, egg-shell, or any ordinary drawing-paper on cardboard.

HINTS ON PURCHASING AND THE CARE OF SABLE AND CAMEL'S-HAIR BRUSHES

All the hairs of a brush should form themselves into a mass gradually tapering to a point. To ascertain this, dip the brush into water (dealers have a cup of water at hand for this purpose) and shake the brush with a quick downward movement of the hand and arm. Note the shape of the brush. If there are any straggling hairs, that particular brush is not likely to be a good one. Nor should there be any hairs longer than, or extending beyond, the entire tapering form of the brush. Give the

brush more than one trial; perhaps you have not shaken the water out with the right force the first time.

Every water-color brush worthy to be used for the work, when tried as described above, will spring into the proper tapering form.



Brushes for Water-Color

Sometimes, in spite of your care in buying, a brush may have straggling hairs, or these may appear after the brush has been used some time. In this case, such hairs can be singed off with a lighted match while the brush is wet.

Besides the regular water-color brushes, do not be afraid to make trial of the various kinds of brushes you see in the shops. You may perhaps

find in this way brushes exactly suited to your hand. Brushes for oil-painting are sometimes available, their particular stiffness or springiness may be just the thing for certain purposes or touches which you wish to get in your work. They must be new and never have been used for oil-painting.

Always clean out brushes after using and see that they dry in the tapering form. They are very soon ruined by leaving paint, especially white paint, to dry in them. Keep special brushes for putting in solid blacks with drawing-ink, as this black liquid has a way of getting into the base of the brushes where the hairs are held by the ferrule. The dried ink stays there and causes the hairs to spread out and spoil the brush for general wash manipulation.

Always remember to run a moistened sponge over the whole surface of the drawing-paper after sketching out the picture and before putting on any water-color. This prepares it better for the reception of the washes.

An outline drawing in water-proof ink can be turned into a very good copy for half-tone by washing flat tints over it in places where your judgment tells you that it will add to the artistic effectiveness. These tints should be transparent. Good washes of this sort are obtained by rubbing up sticks of India ink or by either liquid sepia or soluble drawing-ink.

PEN-AND-INK DRAWING

V

PEN-AND-INK DRAWING[✓]

A PEN-AND-INK drawing is a work executed with a pen in black ink on pure white paper and intended, primarily, for reproduction by the ordinary line or zinc engraving.

In the early days of photoengraving whenever a draftsman made a drawing for that process, he was strictly enjoined by the engraver to use nothing but smooth white cardboard, and not only to make the lines intensely black, but to be most particular as to what kind of a pen-line he made.

This was when the photochemical engraving process was in its infancy, but since then there have been so many improvements in the craft, and the engravers have become so expert, that almost any kind of a line can be reproduced by them very satisfactorily. So in these days an illustrator need not trouble himself very much about the mechanical requirements of the process.

This does not mean, however, that the artist should disregard the rule in respect to the intense black ink and the use of a good quality of cardboard

or paper. Kind and quality of line should be considered, too.

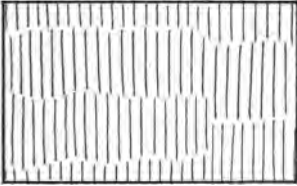
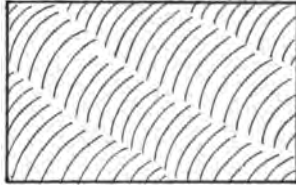
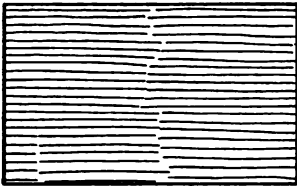
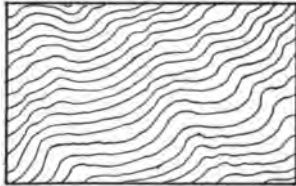
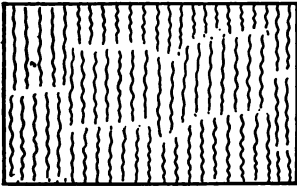
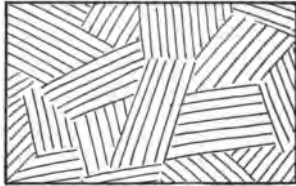
And so before starting in to work, the student of pen-and-ink drawing will find it profitable to give some attention to the different sorts of pen lines and their distinctive qualities.

On the following four pages are groupings of the various lines used in pen work. This list is not offered as a complete or comprehensive enumeration of all lines possible in this particular method of pictorial expression. It is merely presented to suggest to the draftsman the helpfulness of studying and analyzing for himself line technique, and of being constantly on the lookout for and trying new ways of handling the pen.

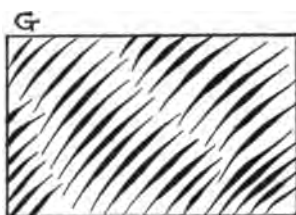
We are impressed in looking over the various illustrations in the periodicals by the diversity of styles in pen-and-ink rendering there displayed. Pictures will be found exemplifying many sorts of pen technique from the unembellished outline sketch to the highly wrought drawing in which every attempt is made to show form and color value as well as the whole play of light and shade.

Some of the different methods of technic in this branch of art are described in this list of kinds of pen drawings.

(1) Simple outline in which no attempt is made to show local color, tints, or light and shade. Some-

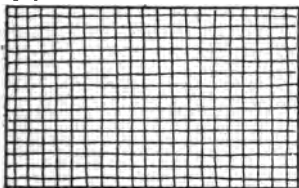
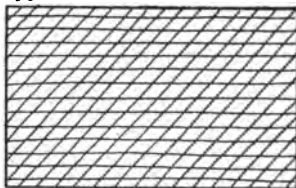
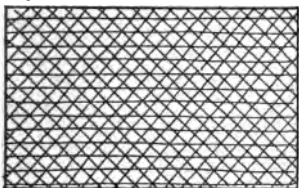
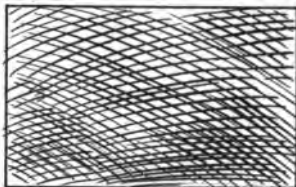
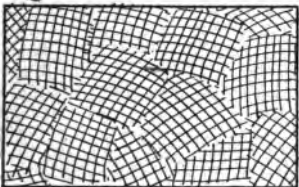
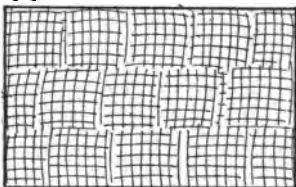
A**B****C****D****E****F****THIN LINES OF EVEN THICKNESS.**

- A.* Bands of short vertical lines.
- B.* Rows of short curved lines.
- C.* Long horizontal lines, broken.
- D.* Irregularly wavy lines, nearly the same distances apart.
- E.* Short, nervous, quivering lines, adapted for stonework in architectural drawings.
- F.* Short parallel lines in contrasting groups resembling patchwork. Useful in backgrounds or designs.

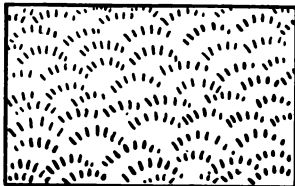
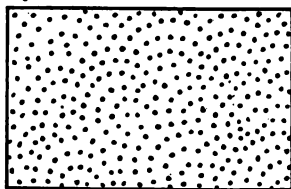
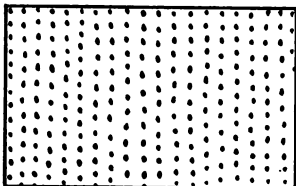
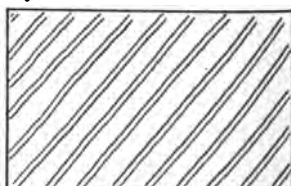
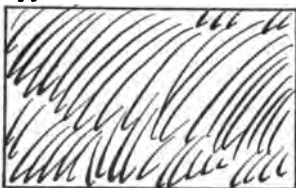
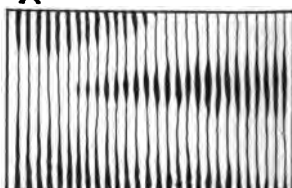


VARIOUS KINDS OF LINES.

- G.** Writing-pen strokes.
- H.** Abruptly ending lines. A stub pen used.
- I.** Heavy lines made with a very broad nibbed pen, leaving a thin white line between them.
- J.** Coarse pen strokes, irregular as to length and direction. A large writing-pen used.
- K.** Wiggling lines, somewhat imitating thumb impressions. For decorative designs. Drawn with a round-pointed pen and using but little pressure on the pen.
- L.** Imitating woodwork or graining. Try a double-pointed pen to get this effect.

M**N****O****P****Q****R****CROSS-HATCHING.**

- M.** At right angles.
- N.** Obliquely.
- O.** Crossed three times.
- P.** Uneven, a favorite way of some cartoonists of putting in shadows or a contrasting tint back of a group of figures.
- Q.** Patches of cross-hatching, set one to the other at variously opposed angles.
- R.** Series of cross-hatched squares. Like a lot of little checkerboards. Difficult to make and get an even tint over a large area.

S**T****U****V****W****X**

MISCELLANEOUS.

- S.** Grass, a very conventional way of indicating it.
- T.** Stipple, the way that lithographers make it—the dots in rows of concentric arcs.
- U.** Stipple in parallel rows.
- V.** Double-pointed pen strokes.
- W.** Rapidly drawn lines ending in hooks. Not good in the engraving, as during printing the hooks catch ink and stay filled with it.
- X.** Thin lines, drawn with a fine pen and afterward retouched and strengthened with a coarse pen in places.

times certain lines are made a little heavier to indicate the shadow side of a form. The lines are sketchy, broken here and there, yet intelligent and sensitive in feeling.

(2) Pure outline only, with flat tints in places to suggest local color and take away from the monotony of mere outline. A large mass of solid black or a pattern-like background is sometimes worked in.

(3) Outlines, bold and sketchy, broken in places where there are wrinkles and angles. The only shading is a general effect, in places, of tinting with oblique lines. These are drawn in a direction natural to a right-handed person; that is, slanting from the upper right side to the diagonally opposite lower corner. This way of shading is the favorite method of those who must do quick work for newspapers and who must evolve pictures without the use of models. Plenty of white spaces are left, and the parallel oblique line tints are put in where they will give the maximum of effect with the minimum of labor.

(4) Expressive and impressionistic lines. These are as few as possible. The artist seems to be most sparing with pen strokes and ink; but very liberal with leaving areas of pure white paper. The lines have been quickly drawn, but much thought is shown by their forcible interpretative qualities. There is never a superfluous line. Drawings of

this kind are best made on thin transparent paper laid over a previously worked-out pencil sketch. In this way you can see what to leave out and only draw the absolutely essential.

(5) Thin lines, very dainty and drawn with the finest pen. More thought given to attaining this daintiness than to what is ordinarily called, "drawing." Meaningless lines put in sometimes merely to fill spaces. A style characterized by leaving large spaces of untouched paper, or it may be marked with only a few sketchy lines in big curves—all leaving much to the imagination and saving the artist a lot of hard work, that is, serious drawing. A charming style but if carried to extremes lacking all qualities but that of daintiness and a certain decorative feeling. Working in this style is sometimes the refuge of those who cannot draw.

(6) Impressionistic patchwork of tints. The whole work characterized by a series of irregularly shaped patterns of tints. Each one of these patches is composed of nearly parallel-lined shadings, the different patches contrasted and relieved one against the other by their strength and the contrary directions of the lines. Sometimes special pens have been used for the lines of different weights. There is hardly any cross-hatching, which is a good point, by the way. A drawing in this style always makes a good printing plate, is attractive, and engages the

attention. But if this patchwork way of "thinking" is carried too far, the result seems more like an exercise in pen strokes and not, as it should be, a sympathetic art work. The drapery rendering of figures in this style is apt to be merely a study of drapery and not a picture of a clothed human being. There is lacking a sympathy for life. At no times does the artist lose sight of the fact that he is handling a pen.

(7) Sketchy lines, confidently put in and easy-flowing. The lines are drawn quickly and in long strokes. In important places, as a face, the lines are marked with more deliberation. The whole drawing has a finished appearance in spite of the sketchiness of the pen work. There is a perceptible touch in the boldness and vigor of the technical skill which assures one that the artist can draw and that he does not work in this manner to conceal any bad draftsmanship. Such drawings are generally made with a fine but tractable pen point.

(8) Marked by a grayish quality of nearly all the tints over the entire drawing; unless, perhaps, a forcible dark spot has been happily placed in a contrasting position. There is no cross-hatching, to speak of. No hard outlines, nor tints bounded by a line. Places where ordinarily a limiting outline would be marked, are left blank. The imagination supplies the line.

(9) A style full of power that shows skill and ability. The pen handled with perfect freedom. Distinctly a pen drawing, yet showing that the artist never once thought of the point in his hand as a pen point. The general effect only thought of, and not the individual lines. The certainty with which the masses of lines are drawn and the confidence exhibited in the delineation show that the artist knew exactly what he was about and had a mental picture all the time of what he was striving for.

(10) Conventional and matter-of-fact style. All the component parts of the composition faithfully drawn. An endeavor to represent the full roundness of form and copy all the lights and shades. Principal figures usually strongly outlined. No broken lines. The directions of the pen strokes suggested by the forms of the objects, casts of the drapery folds, or the way the shadows fall. There is much cross-hatching and a proneness to cover the entire surface of the picture with pen lines.

(11) Pen-and-ink etching. A contradictory term, but descriptive of the style under consideration, as it simulates somewhat the work of the etcher's needle. A steady hand is required for this manner of drawing, as it must be executed with a very fine pen. The pen, too, must be firm and respond to every degree of pressure that the artist imparts to

it. No definitely fixed character of line prescribed for this manner of working. The lines are mostly characterized by a zigzaginess and any kind of cross-hatching. This peculiar pen technique if indulged in by one not gifted is likely to occasion a scratchy or mushy mess of lines. The sure hand of the matured artist is needed to make a successful pen drawing of this sort.

(12) Decorative and ornamental pen drawings made by lines that are not put in carelessly nor by slipshod methods. Every line marked with not only deliberation, but plain intent. Quality and kind of line definitely indicated—clearly shown and no attempt to disguise the fact that they are anything else but lines. Diversity and dissimilarity in styles and manners are characteristics of decorative pen drawings. For the purpose of studying this mode of handling the pen, the student can find excellent examples among old wood-cuts and copper-plate engravings.

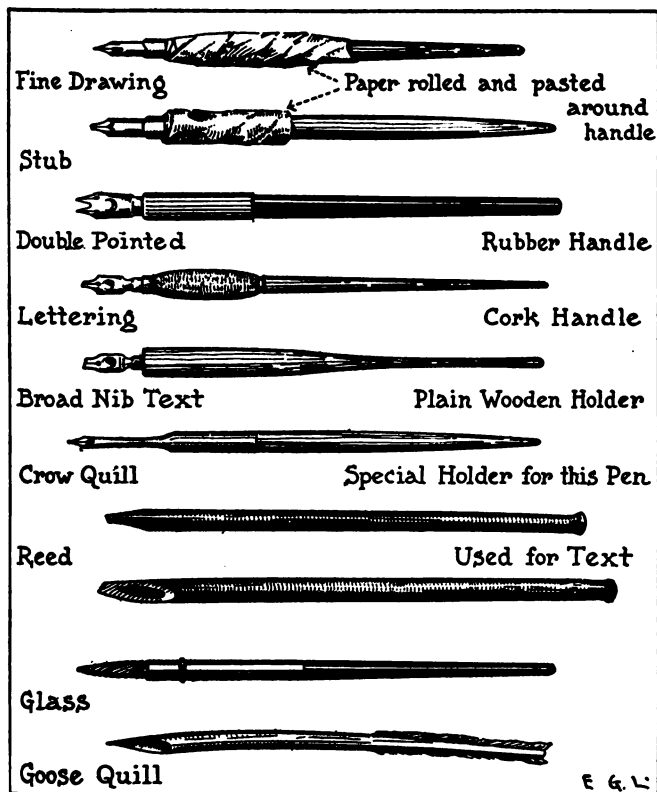
(13) Heavy lines and black blots and white spaces. Vigorously drawn with a coarse pen, or even in places with a brush. Very little outlining with a continuous line. Forms and the drawing mainly indicated by the contrasting relationship of tints of various strengths. Very heavy dark shades drawn in thick lines with a thin white line between them. These thin lines appearing as if

painted in over a solid black. In fact, in some places, a method of painting in lines with a small brush charged with white has most probably been employed.

MATERIALS NEEDED IN PEN-AND-INK WORK AND DIRECTIONS FOR THEIR USE

Bristol-Boards and Papers.—Bristol-board is mostly used for making pen drawings for engraving. The white of some cardboards is of a creamy tinge, but it is best to use that with as pure a white as it is possible to get. A perfectly smooth surface is to be preferred in bristol-boards, but another surface called "kid finish" can be used at times. Bristol-boards come in a number of sizes; the most economical way is to get the regular size as handled by cardboard dealers or printers' supply men. This is 22 by 28 inches. Ordinary cardboards should not be used, as they are mainly of a porous texture and will cause the ink to spread or give ragged lines. The right kind of a surface is necessary, too, to stand an occasional scratching out of ink lines. Writing paper if smooth makes a good surface on which to draw with the pen. Your stationer should be able to get you large sheets of it, if the art-material dealer cannot supply you. Ask for heavy linen ledger paper.

Penholders.—Almost any sort will do, but it is a good plan to have a number of kinds so as to rest the



Pens and Penholders

hand by the variously shaped handles. One way to make the grasp of the hand easier and more com-

portable is to roll and paste strips of paper around the socket of the handle. Make this as thick as you desire, then if you grasp it before the paper and paste are completely dry, the roll of paper will conform, cushion-like, to the grasp of your fingers.

Pens.—For many years Gillott's pens, Nos. 290 and 170, have been the favorites with pen artists. You will find also other good makes of drawing-pens in the art-material shops. The crow-quill is a very good pen that fills nearly all the requirements of the pen draftsman. It can make the finest hair line and has a point that responds to enough pressure to make a line nearly one-eighth of an inch thick. First-class stationers now keep a supply of drawing-pens on hand together with many other kinds that can be used in line drawing. Stub pens, for instance, are sometimes very good in coarse work; likewise large writing and double-pointed pens. When a line is wanted thicker than any pen will make, it is advisable to try a showcard writer's brush. This is a sable brush with very long hairs. If it is managed with a steady hand, long firm lines can be made with it.

Ink.—The water-proof variety is the one generally employed. Some who like to work in delicate thin lines choose the soluble ink. Bourgeois's French ink comes in a bottle which is conveniently held in

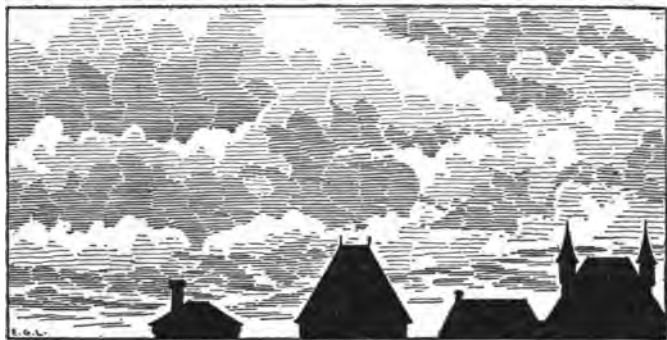
the hand. Most workers, to be sure, fix the ink-bottle in some sort of a stand that is not easily upset; but artists who work on large, easel-like tables with the paper fastened down, work with the pen in one hand and hold a bottle of ink in the other. It saves a little time in charging the pen with ink. If long and thick lines are made, the fine drawing-pens hardly hold enough ink for two such lines, and reaching over to a table to dip the pen in an ink-bottle every two strokes means a real loss of time.

Lead Pencils.—A medium pencil is best to use, as the markings of a very soft pencil will soil the paper and necessitate so much erasing that the surface is somewhat spoiled for pen work. Hard-pencil markings are difficult to erase. Some find it expedient to first draw their composition on manila paper and then transfer it to a sheet of cardboard. This is accomplished by rubbing pencil dust on the back of the manila paper and then tracing the details of the drawing through with a hard pencil or a stylus. As pale-blue markings do not photograph when set up before the photoengraver's camera, newspaper pen artists sometimes make their preliminary sketching with a blue pencil. It is not necessary, in this case, if the blue markings are not too heavy, to clean off the drawing with the eraser.

Erasers.—A very soft white rubber eraser is the best kind to use while making the preparatory pencil sketch for a pen drawing. Take care not to use an eraser in which the rubber has lost its elasticity and is hard and lifeless, as it will smudge the pencil marks. And other rubbers have a way of breaking up into particles that stray around the board and table, get into the ink, and cause the pen to get clogged up. Be sure and have the right kind of an eraser on your drawing-table. For cleaning the drawing at the last, use a sponge rubber; it will take off the pencillings and yet not weaken the black of the ink.

Making Corrections.—If the right kind of bristol-board has been used, any ink lines not wanted can be taken out with an ink-scraper or a sharp-bladed penknife. The roughened surface of the scratched cardboard can be smoothed over with a bone burnisher (make one out of an old tooth-brush handle) before redrawing with pen and ink. Where a change is to be made over a large surface it is better to paste over it a piece of linen paper. Use a very thin, but not transparent, paper and see that the edges do not come at any important part of the picture, as any break in the tint or shading is likely to show in the engraving. Shaving the back of the paper along its edge, so that this edge shows hardly any line where it clings to the cardboard,

will preclude any possibility of a break in an ink line or tint drawn over it. If any corrections are to be made by painting in white, or to sharpen ragged ink lines, be sure and use a pigment that will photograph white. Albanine or one of the process whites should be employed.

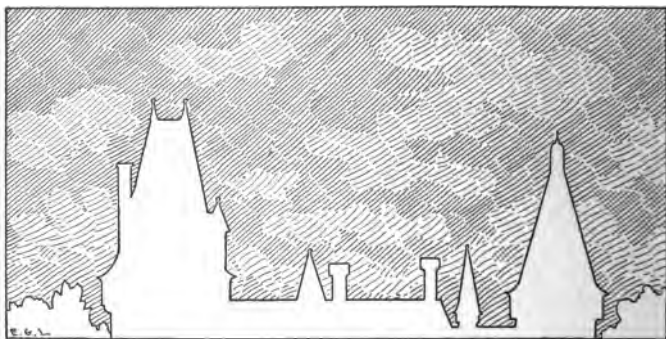


FURTHER SUGGESTIONS IN PEN-AND-INK DRAWING

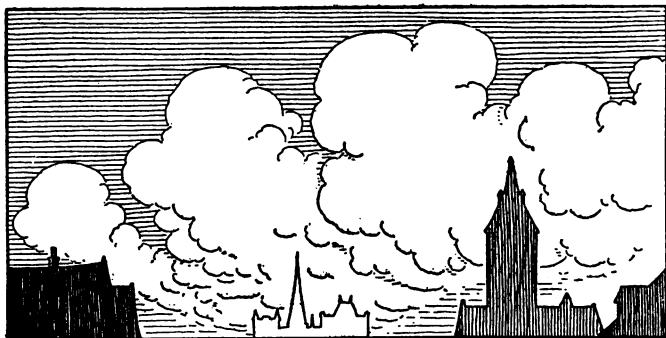
Sometimes the effort to get good, firm lines in pen work results instead in a series of hard lines. Now here the ink-scraper can be used to soften them by zigzagging scratches across the ends of the lines or borders of the tints. This procedure, however, is not recommended as an habitual practice, as it has a tendency to roughen the paper and lines and give poor printing lines in the plate. It is only

applicable to bold and vigorous drawings that are to be reduced a great deal.

The term *chiaroscuro* is generally applied to, or used to describe, the picturing of things in blended and graduated tints. This is the way of working in oil and water-color painting and charcoal drawing. Although pen drawings can be made that nearly render the whole effect of light and shade, the art is for the most part to be considered as having certain limitations. The gifted technician, even though he be one of the best, must not expect to use his tools and medium in representing every subject with the many advantages possible in oil or water-color. In this branch of art—pen-and-ink—we cannot ordinarily disassociate ourselves from the idea of lines, and are compelled to be mindful of how and what kind of lines we draw.



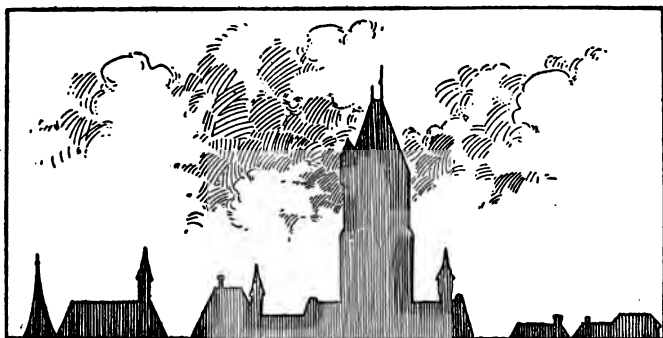
Skies and clouds, for example, are very hard to draw with the pen point. The best we can do, with the possible exceptions of very dark and heavy clouds, is to make something more or less diagrammatic or symbolic.



When the artist is putting in a sky to fill out the background of a “commercial drawing” of a building, or he wishes to indicate cloud masses to help the composition in a landscape pen drawing, he should keep before him the idea of simplicity and not attempt to do too much.

Above all, in drawing clouds in line work, avoid cross-hatching. Keeping tints open with lines wide apart gives a luminous quality to skies.

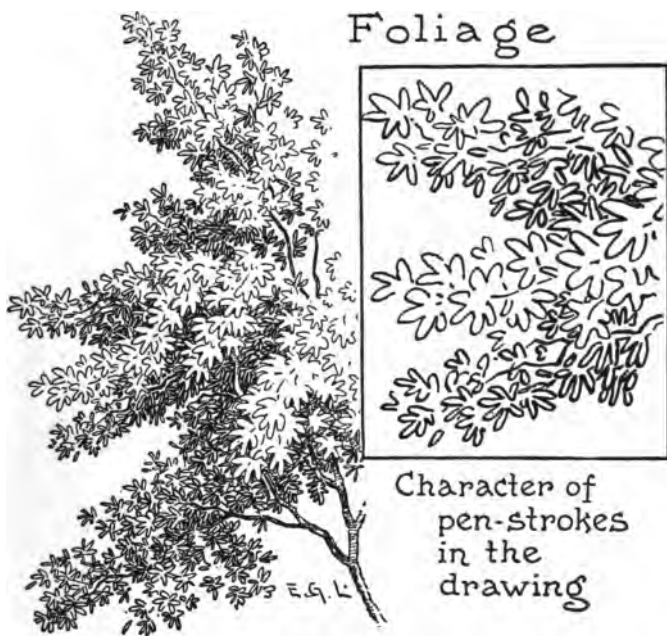
Some pen artists who turn out a great quantity of drawings and are compelled to do them hurriedly



have a few stock skies which they rapidly put into their drawings. This is not such a serious fault, considered from a practical point of view, as it at least keeps them from attempting things beyond the technical limits of pen work. For in picturing skies and clouds by this method, the less you do the better. One might add, that the best "rendering" for skies in pen drawing is white paper.

It is very hard faithfully to portray trees in pen-and-ink, and the best thing seems to be to use interpretative lines that suggest rather than draw the foliage. You adopt, for example, some particular pen stroke for the foliage of a tree and repeat it throughout the entire foliage mass of that tree. But in doing this it must be remembered that it is nothing more than a conventionality and that there is need of varying the strokes. The monotony of the regular foliage touch or characteristic can

be broken by having white spaces where the light strikes the masses of leaves and causes a glittering



A COARSE PEN USED

that prevents definite outlines from being seen. Again in the shadows under foliage sprays and on the side away from the light you need only put in dark-lined tints without any suggestion of foliage detail.



How the
pen-work
appeared in
the drawing

Foliage



A FINE PEN AND A COARSE PEN USED.

As a rule, when drawing foliage, the direction of the lines, whether in pencil or with the pen, should be as if they radiated from the central part of the tree. Keep thinking how leaves radiate from a spray, and the sprays from branches and these again from the main trunk.

Give a great deal of attention to the branches that point toward you, and to the pointing-toward-you leaves on these branches. It is easy enough to

Foliage

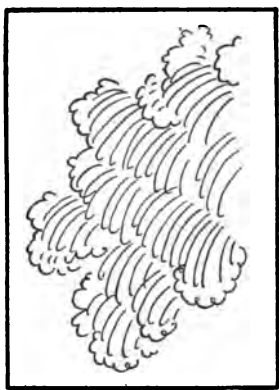


How the
lines
looked in
the drawing

A FINE PEN AND A STUB PEN USED.

draw the side branches, as they are nearly always so clearly silhouetted against a background—usually the sky. It only seems natural, after marking the general form of the tree and a line for the

Foliage



Quality of
lines in the
drawing



A NEW 170 PEN USED.

main trunk, to start in by drawing the side branches, as they so plainly give the character of the tree. But it might be just as well to draw first those branches of the tree that point toward you, as they are hardest to get right and require more thought and care.

In foreground trees or shrubs, the leaves that are nearest to you should be somewhat detailed

Foliage



How it looked in
the drawing



MADE WITH AN OLD, MUCH-USED PEN.

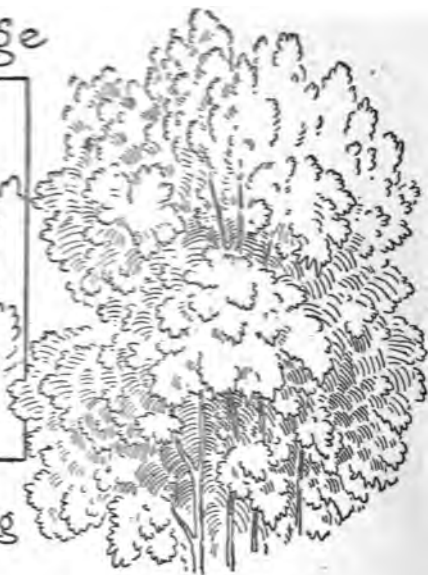
and marked with stronger lines than the leaves on the sides or those farther away from the eye.

For effective pencil foliage rendering, or even in the preliminary roughing-out for an ink drawing, use a chisel-pointed lead, or hold the pencil between the thumb and the four fingers and nearly parallel with the surface of the paper and use the side of the lead. In this way broad, sketchy marks are produced for quick interpretation of the shadow masses.

Foliage



Part of
the drawing



MADE WITH A FINE PEN.

HELPFUL GEOMETRY

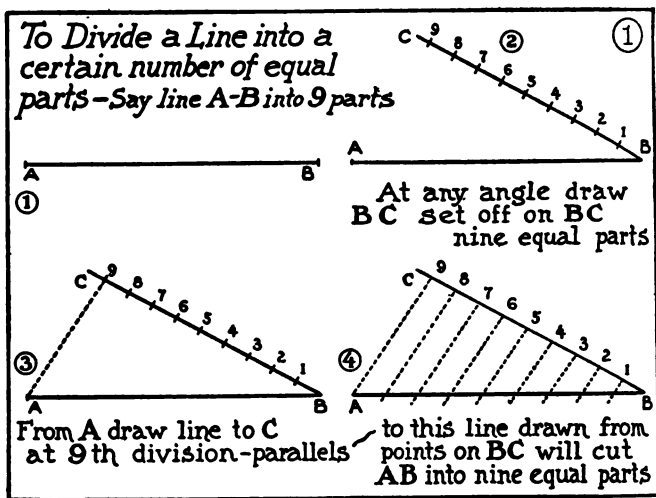
VI

HELPFUL GEOMETRY

ARTISTS, illustrators, and designers rarely need to be skilled in mechanical drawing nor to have any special scholarship as geometricians. A knowledge of a few simple problems in plane geometry, however, can often be advantageously turned to account in certain classes of their work.

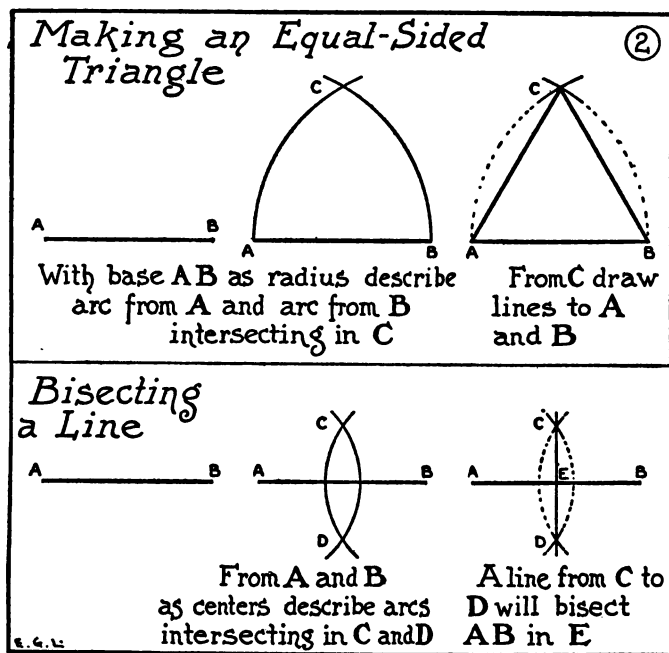
The sure methods of geometry are much better than guesswork in the construction of regular plane figures, ellipses, etc., to say nothing of saving both time and labor.

Take, for instance, the dividing of a line into a certain number of parts. The first diagram of this chapter shows how to do this. You will need a straight-edge and a triangle. A scale marked off into centimetres and millimetres is also available, as it is very easy to calculate the divisions with it. You can also use a T-square with a shifting head adjusted so as to run the parallel oblique lines. It is necessary that the edge of the drawing-board be absolutely straight in drawing parallel lines with the T-square.

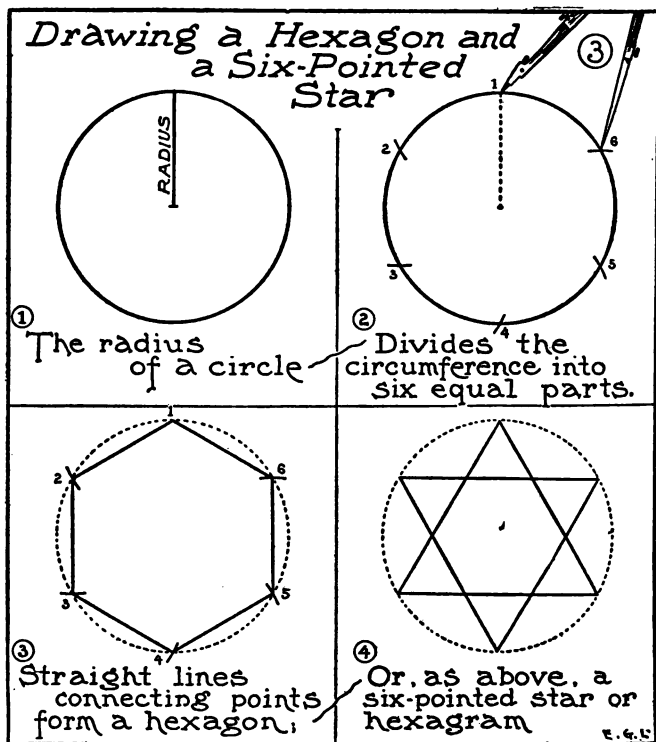


The method, as shown in the diagram on page 106, of marking off the radius of a circle on its circumference and getting six points on which to construct a hexagon, can be used in drawing the network of lines for the groundwork of a repeat pattern. Make the circle in the middle of the paper and find the six equidistant points, then through the centre of the circle and the six points draw the two sets of parallel lines as shown in the diagram. By using the points and lines so obtained and the degree of obliquity of these lines, the whole surface of the paper can be covered with a foundation on which either ornamental or floral repeat patterns can be designed.

Frequently a designer wishes to draw a polygon with an equal number of sides. It is an easy matter, as we have seen, to construct a polygon of six equal

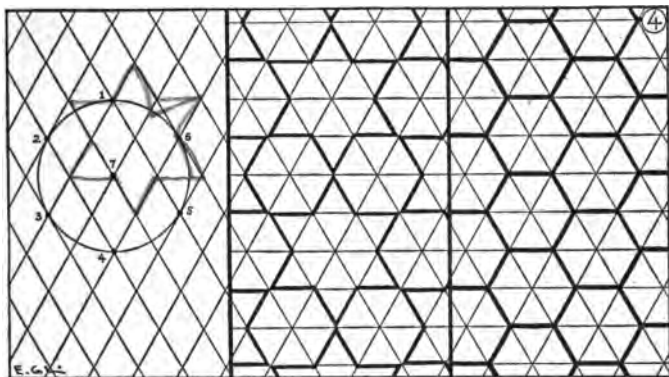


sides, but when it comes to marking an uneven sided polygon, there is a difficulty of dividing the circle—if a circle is taken as a start—into the required number of equal parts. The diagram on page 108 in this chapter shows how to make a pentagon in-



scribed within a circle, and then if you wish with the same points a pentacle or five-pointed star.

Any regular polygon can be made by the aid of a circle. Divide the diameter of the circle equally into the same number of parts as there are sides to the required polygon. Now from the ends of the diameter, as centres, describe arcs with radii equal

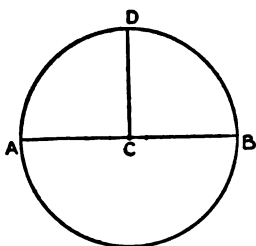


CONSTRUCTING THE GROUNDWORK FOR REPEAT PATTERNS.

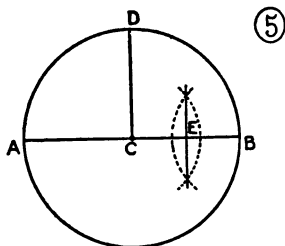
to the diameter, and intersecting at a point outside of the circle. Then from this point, where the two arcs intersect, draw a line through the second of the divisions on the diameter to and intersecting the circumference of the circle. Here from this point to the nearest end of the diameter, you now have one side of the required polygon. This is the most practical method of dividing circles or inscribing within them regular polygons when the required number of sides is an odd number like 7, 9, or 11. It is important to remember that it is always the second division on the diameter through which the line from the point outside the circle is drawn.

When designers have need of oval or elliptical forms or parts of such forms, they will find the way

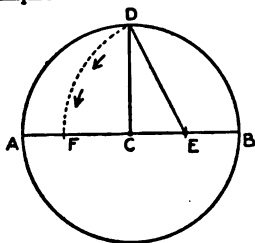
Drawing a Five-Pointed Star



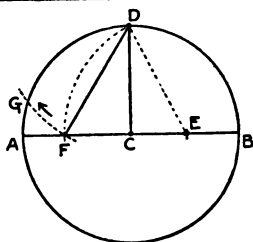
- ① Draw a circle; the diameter AB and perpendicular CD



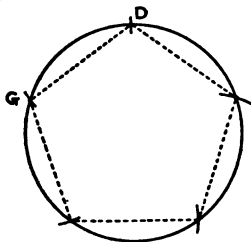
- ② Bisect CB in E



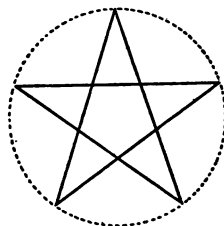
- ③ With center E describe arc from D to F



- ④ With radius DF describe arc cutting circle in G. DG will be $\frac{1}{5}$ of the circumference.



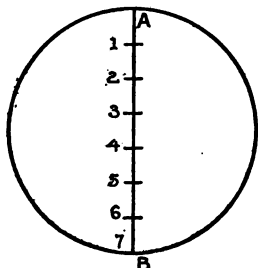
- ⑤ Set off DG on the circumference and join points by straight lines to form Pentagon



- ⑥ Or as above for a Five-pointed Star or Pentacle.

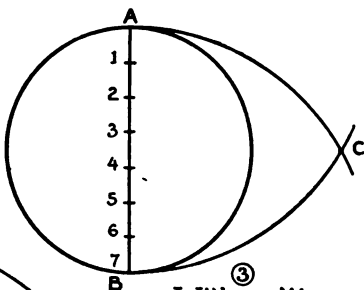
E. G. L.

Drawing a Regular Polygon- ⑥ Say a Heptagon

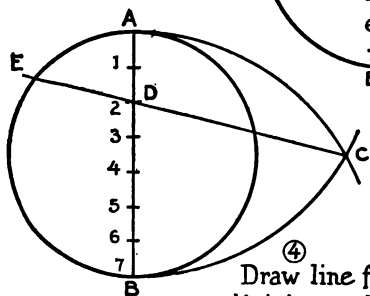


① Draw a circle and the diameter AB

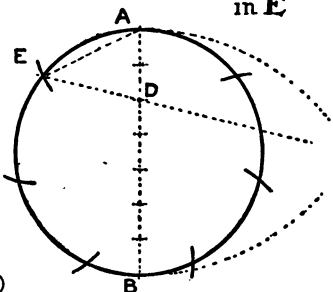
② Divide AB into seven equal parts



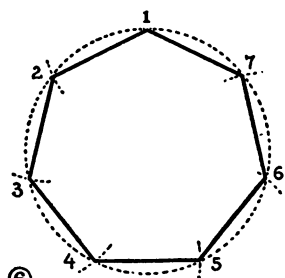
③ With radii equal to AB describe arcs from A and B cutting in C



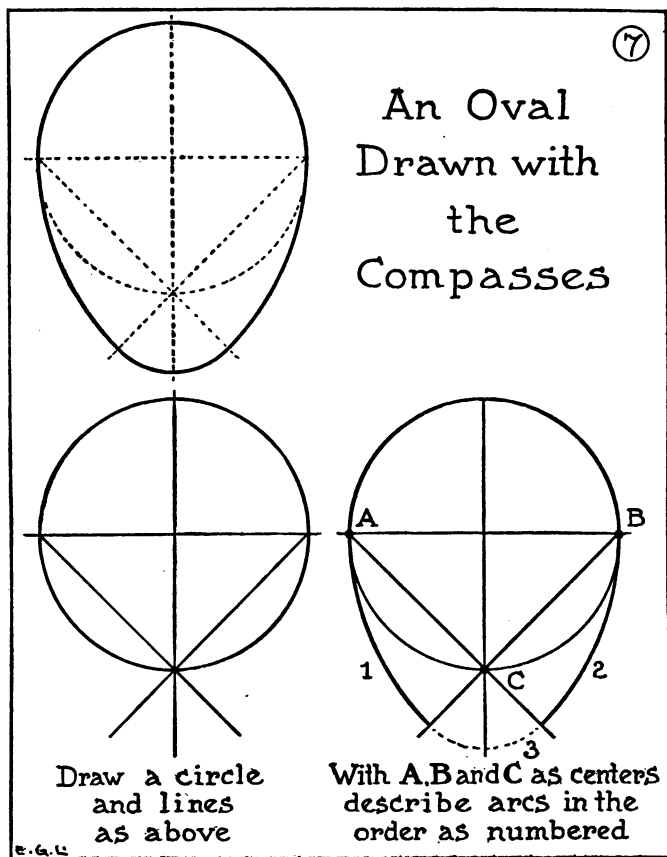
④ Draw line from C through second division on diameter in D to circle in E



⑤ AE will be $\frac{1}{7}$ of circle Mark AE on circumference

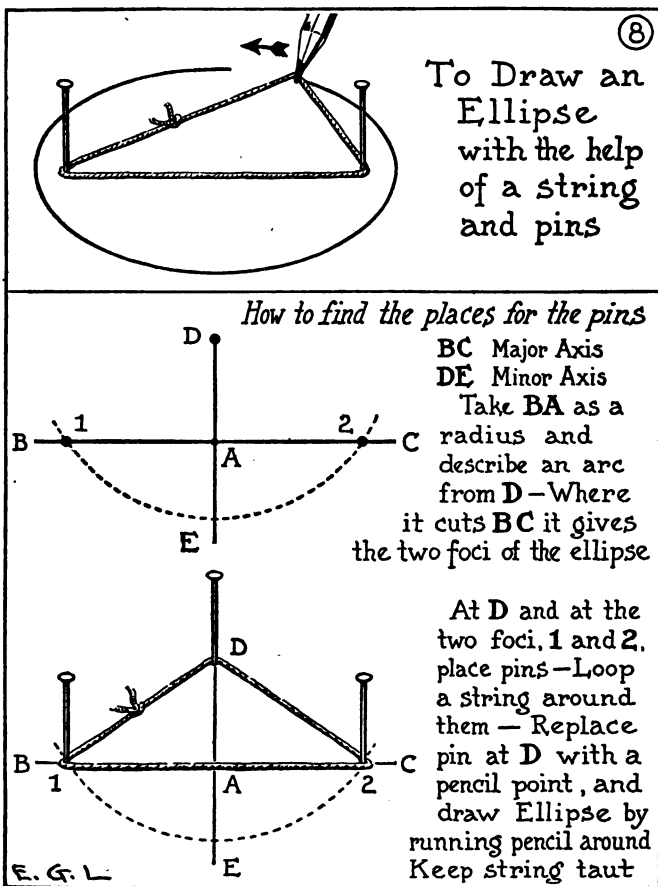


⑥ Joining the seven points thus obtained complete the heptagon



of making them explained in the two plates in this chapter.

It is a good plan if one needs, say, an oval, to draw it first on a piece of stout paper, carefully cut it out



with the shears, and then use the pattern so obtained to trace the oval with a firm outline on the fresh drawing-paper.

Drawing an Approximate Ellipse with the Compasses

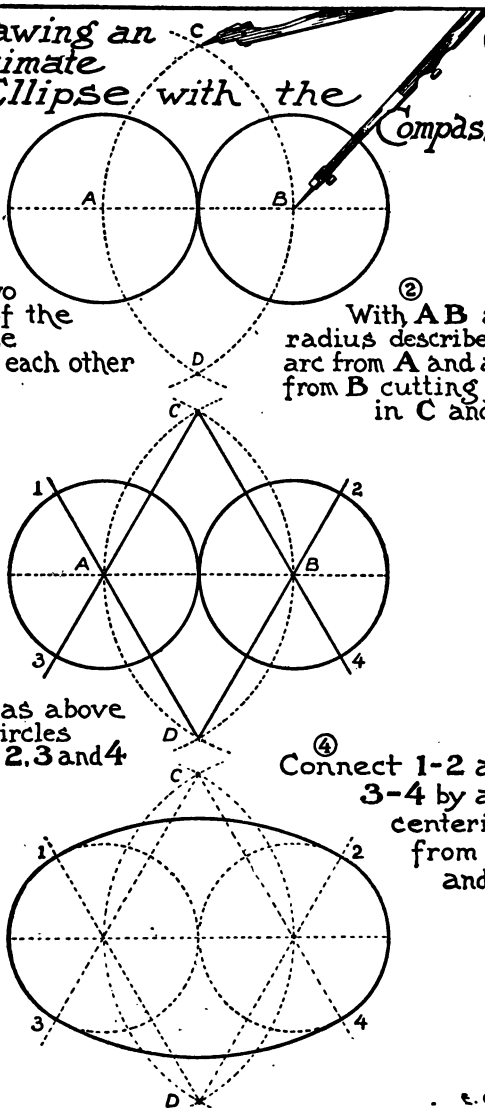
⑨

① Draw two circles of the same size touching each other

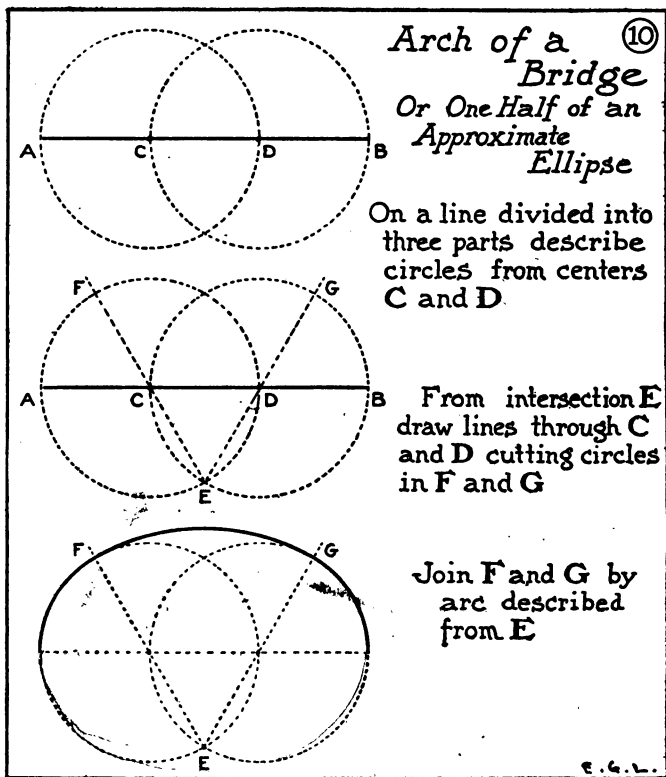
② With A B as radius describe arc from A and arc from B cutting in C and D

③ Draw straight lines as above cutting circles in 1, 2, 3 and 4

④ Connect 1-2 and 3-4 by arcs centering from D and C

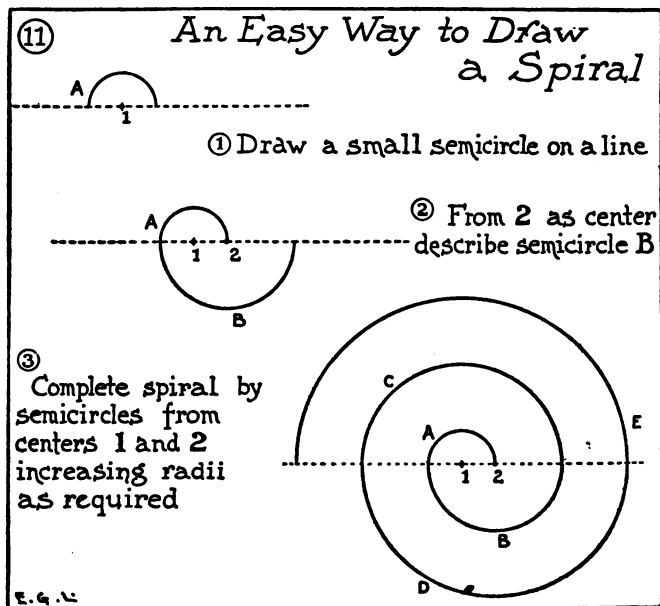


Note that an oval is egg-shaped, having one end of a greater or broader curvature than the other. Some of its curves can be described (optionally,



not necessarily), by the compasses. But the curves of an ellipse can never be drawn with compasses. Furthermore, an ellipse can be divided, by a line

through the major axis and one through the minor axis, into four equal parts; whereas an oval can be divided into equal parts bilaterally only; that is, by a line through the long axis.



Special instruments have been invented to outline ellipses; ordinarily, though, an artist can make the method do that is shown here of using pins and thread.

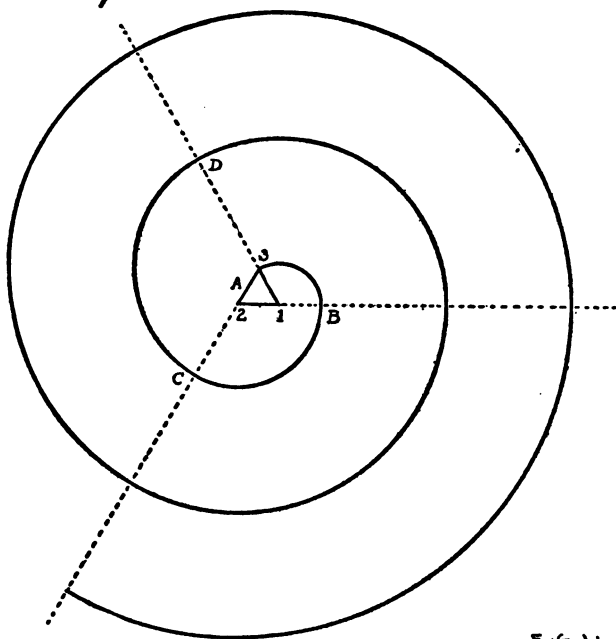
The shadow of a circle under certain conditions, the section of a cone cut obliquely, and a circle in

⑫

Drawing a Spiral with the Compasses

① Construct an equilateral triangle and extend sides as shown.

② Begin at 1 draw arc 3-B
Then arcs from 2 and 3, to
1 again, and so on,
increasing radii as required



E. G. L.

perspective are elliptical in form. Artists can make the difficult work of drawing wheels in perspective easier by roughly sketching out the size wanted and then constructing an ellipse of that size on another piece of paper, which when cut out can be used to trace a firm and certain outline of the perspectively viewed wheel.

On account of the facility of construction and because fine lines can be made with the pen compasses, a method is illustrated of making an approximate ellipse with instruments. A way is also shown of drawing a curve resembling the arch of a bridge.

Often in ornamental or industrial work the designer has need, not only of an accurate, but of a firmly lined scroll or spiral. Two diagrams in this chapter make it plain how to construct two such forms mechanically with the compasses.

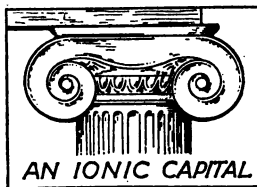
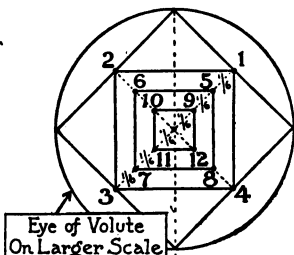
The next engraving explains the making of a much more graceful spiral ornament: namely, the Ionic volute. To draw this curve proceed in this manner: A line which represents the height of the intended volute is divided into eight equal parts. In the fifth division, counting down, describe a circle. This will be the eye of the volute. Inscribe within it a square resting on one corner. Draw its diameters and divide each into six equal parts; on the points so obtained construct three squares.

Drawing a Volute of an ⁽¹³⁾ Ionic Capital

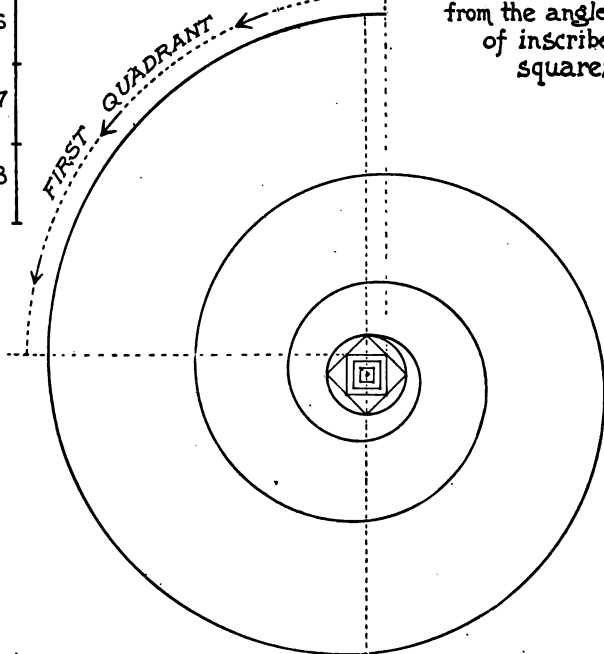
1
2
3
4
5
6
7
8
① Height of Volute

divide into 8 equal parts

② In 5th division draw a circle with inscribed squares as shown above

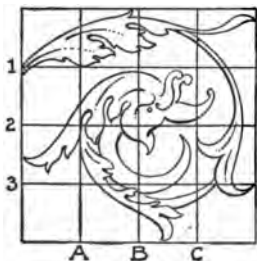


③ Draw quadrants in order numbered from the angles of inscribed squares



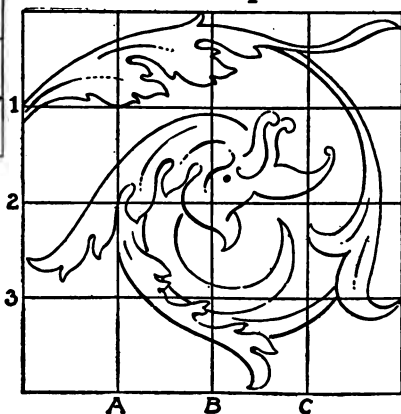
E. G. L.

Number consecutively, as shown in the enlarged scale of the eye of the volute, the twelve angles of these equidistant squares. Now, these numbered angles are used in their sequence to describe quadrants that complete the spiral. Radii are made



(14)

*Enlarging by
Squares*



smaller as required. The sides of the little squares, if extended in lightly drawn construction lines, mark limits of quadrants and show where they join each other.

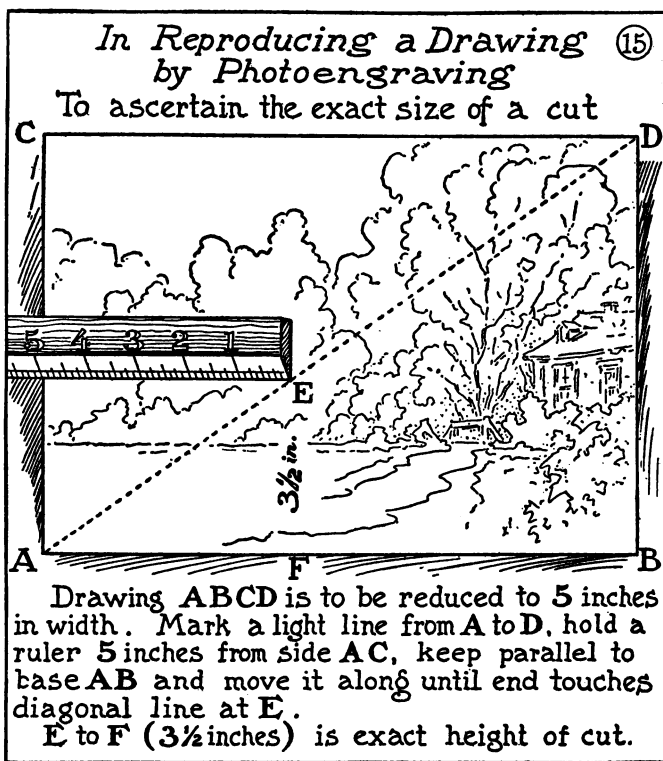
An intricate design or a small sketch can be enlarged by ruling it off into a number of small squares and then ruling the larger area with the same number of, but larger, squares. The drawing is then copied

mechanically square by square. Of course, drawings can be reduced by squares, too.

This is one technical method in practical art that is as old as the pyramids, for it seems to have been used by the ancient Egyptians. In almost every collection of antiquities from the land of the Pharaohs there are exhibited one or more sculptor's copies—little slabs of stone with pictures, over which are ruled squares in scratched lines filled in with a red pigment or chalk.

Sometimes a draftsman wants to enlarge some design by this method, the original copy of which must not be disfigured with pencil markings. To overcome this difficulty, take a sheet of gelatine—the kind used by lithographers and etchers—and scratch with a steel point a series of squares on it. Rub powdered red chalk into the scratched lines and then lay the gelatine over the copy. The design can now be seen divided into squares by the red chalk lines.

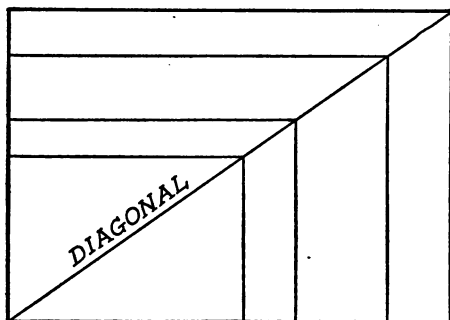
When you send a large drawing to the photo-engraver to be reduced to a certain size, you want to know sometimes the exact height of the engraving. It is not difficult to ascertain this. Remember the rule that rectangles having a common diagonal are in proportion, and draw over the sketch, in light pencilling, a diagonal from corner to corner. Now hold a ruler along the edge near to the lower



corner where the diagonal comes, then, keeping the ruler parallel with the base and at the required width, push it up until the end touches the diagonal line. From this point on the diagonal to the base-line will measure the height of the engraving. Some seem to have trouble in remembering on which side to

hold the inch measure; but as stated above, keeping in mind the rule in regard to the common diagonal will help in avoiding all difficulty.

When it is not advisable to mark the drawing, even faintly, stretching a string across in lieu of a pencilled diagonal will answer the purpose very well.



(16)

Rectangles having the same line as a common diagonal are in proportion.

PERSPECTIVE MADE CLEAR

VII

PERSPECTIVE MADE CLEAR

THE exemplification usually given in the introductory chapters of books on perspective is that of the window-pane on which the view outdoors is traced, or imagined as traced, perspective.

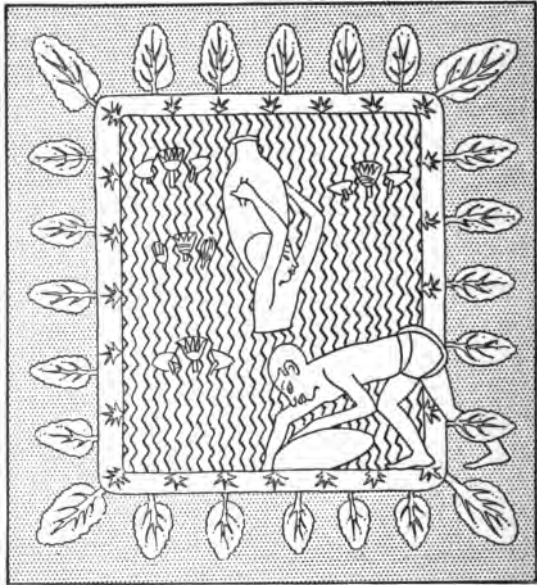
No simpler illustration than this can be given to make every one understand fully and vividly that that is the way the whole external world is perceived by the eye.

The primitive artist did not depict things as he saw them; but as he palpably knew them. His knowledge of what things were, learned through sense and tangible apprehension, influenced him in his efforts at drawing. We look on his naïve delineations, lacking perspective and light and shade, as nothing more than symbols. Perhaps to him, though, they were pictorially very realistic.

The ancient Egyptians, if the pictures that they have left to us can be taken as a criterion, never realized that their eye was an optical instrument that reflected things perspective.

A pond bordered by plants and trees, drawn by an Egyptian artist was made as a map with the water

conventionally shown in rows of zigzag lines. The bordering trees and plants looked as if they had been flattened out and pointed in the four directions of the compass. The two figures in the picture



SLAVES DIPPING WATER FROM A POND.

Part of an ancient Egyptian painting.

were drawn totally out of proportion to the rest of the composition. To indicate that there were growing aquatic plants, lotos blossoms were merely placed about.

All to our eyes very decorative and symbolic,

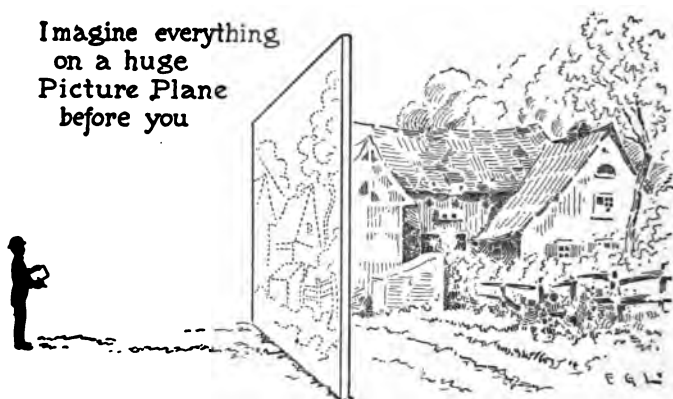
but to the ancient artist a faithful representation, perhaps, of the objects and view.

The human figure was drawn in rather a queer way by the artists of ancient Egypt. It would be something like this: the legs and part of the body in profile, the shoulders twisted around to a front view, then the face in profile and the eye carefully outlined as it is seen in a full face view—all showing that he did not attempt to portray the figure as his eyes reflected it photographically. It would be hard to say whether he worked in his quaint way through lack of technical skill, disinclination, or non-realization of how objects and scenes actually looked to his eyes.

The character of the drawing in the Pompeian wall-paintings shows that the artists of those times were beginning to notice that if they wanted to produce the semblance of reality in picturing solid angular things they must have certain lines slant, either downward or upward. But they did not seem to grasp the idea of conforming consistently to fixed vanishing points in the directions of these slanting lines.

Then, too, the drawings of some modern Oriental artists betray in their simplicity ignorance of the elements of perspective. They have slanting lines to define their buildings and straight-edged solid objects; but the respective slanting lines do not go to vanishing points.

Now, perspective could be easily comprehended if the external world, instead of being thought of as solid and material—which fact our tactile and mental faculties constantly remind us of—is in

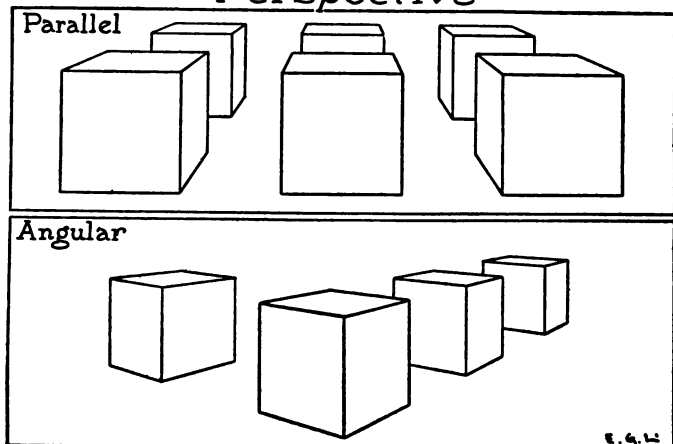


imagination projected forward and outlined on an ideal plane directly before our eyes. Doing this, considering the natural object you wish to draw as merely traced out on a supposed plane before you, is the first lesson in the study of perspective.

The black-and-white draftsman is interested mainly in linear perspective. Curvilinear perspective is used in planning cycloramas, and aerial perspective is of interest to the landscape-painter and does not bring the question of lines into use, but concerns itself with differences of the tints and

colors in a general view as they vary from the foreground to the distance. The study and consideration of it help the artist in rendering correctly effects of atmosphere, space, and distance.

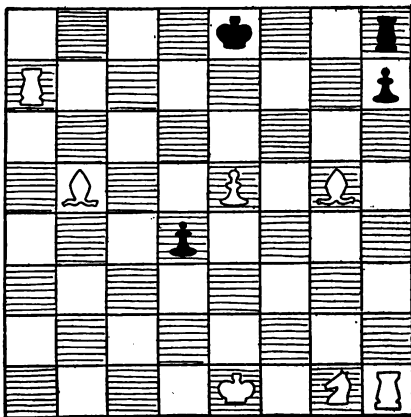
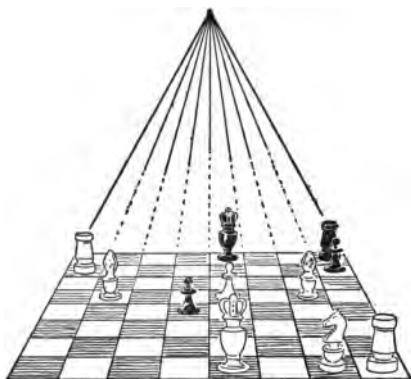
Perspective



Of linear perspective there are two kinds: parallel and angular.

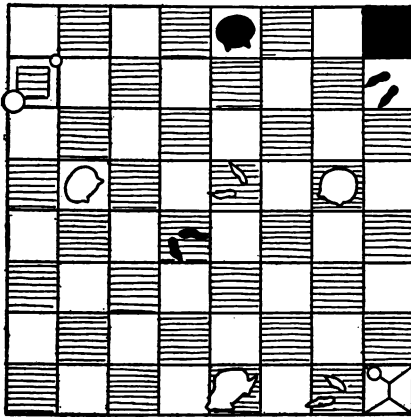
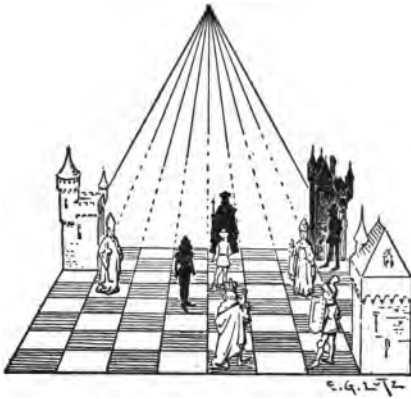
In the simpler of these, parallel, all the horizontal lines that are at right angles to the central visual ray, or the line of vision, are shown parallel; and the lines which in nature go in the same direction as the line of vision, in a perspective rendering recede toward a point on the horizon directly before the spectator's eye.

A familiar example is that of a floor marked off



A FANCIFUL ANALOGY.

into square feet with the crosswise lines parallel to the horizon. A view of a huge checker-board placed on the floor with one edge directly before you would do to illustrate it.

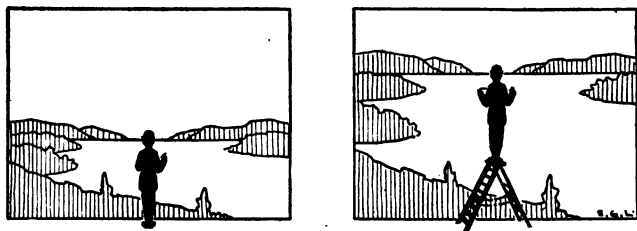


A FANCIFUL ANALOGY

Most drawings requiring pictorial projection are made in angular perspective. In this method the principal object is placed in such a way that some corner or angle points toward the observer and the

lines bounding its edges converge obliquely toward vanishing points.

The best way to make perspective clear is to give a particular example and show the way of procedure from the beginning and carried through to the end. You will find, then, illustrated in these pages, seven plates with explanations of a simple



The Horizontal Line is always on a Level with the Eye

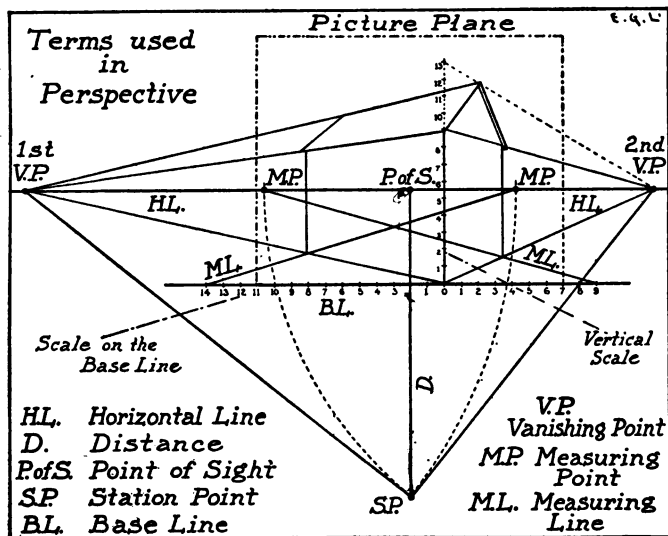
problem in angular perspective. It will be advisable, though, that perspective terms first be studied.

TERMS USED IN PERSPECTIVE

Horizontal Line.—A line on a level with the observer's eye, not always apparent. Visible in a view of the sea or the open flat country.

Point of Sight.—A point on the horizontal line opposite the observer's eye. In parallel perspective this is also the vanishing point. It is sometimes called the centre of vision, or the centre of the picture.

Distance.—The line marked in the drawing as running from the point of sight to the station point, or observer's eye, and measuring the principal distance. It will here be spoken of as the distance or the line of distance. This line is at right angles



to the horizontal line and equal in length to the base-line or the width of the picture. When shorter, that is, bringing the observer's eye closer, the result will be a rendering of the objects in sharp-angled or violent perspective. This line is called by some the vertical line, probably because it is a vertical line in the drawing. But this term seems misleading,

as the line represents in actuality an imaginary level one; *i. e.*, the line of vision from the observer's eye to the centre of vision or the point of sight.

Station Point.—The position of the observer's eye opposite the point of sight, and at a distance from it equal to the width of the picture. This position of the station point makes the optic angle for viewing things a proper one; that is within sixty degrees. It will help in working out problems in perspective to think of the station point and the line of distance as not on the flat surface of the paper but jutting out toward you. The station point is only placed on the paper to use in establishing the positions of vanishing and measuring points. If there is no room below on the drawing-board, the station point can be placed above the horizontal line.

Base-Line.—A line parallel to the horizontal line and below it at a distance equal to the height of the observer's eye. The base of the picture plane and the front line of the ground-plan meet at the base-line. In working to scale, measurements are marked on the base-line. It is sometimes called the ground line.

Picture Plane.—An imaginary plane resting on the base-line. The horizontal line crosses it at the height of the observer's eye. The line distance meets it at the point of sight at right angles. The picture plane can be likened to a transparent screen

to which the points of the view are brought forward by lines that centre, or focus, at the eye. In passing through this screen these lines leave their impress and produce a huge picture of the view.

Vanishing Point.—A point to which converge—in a perspective drawing—lines which in nature are parallel to one another. For level lines the vanishing points will be found somewhere on the (level) horizontal line. Inclined lines have their vanishing points either above or below the horizontal line.

Second Vanishing Point.—If the first vanishing point is known, the second can be found by drawing a line from the first vanishing point to the station point and from here, at a right angle, another line continued to the horizontal line. Where this line cuts the horizontal line marks the position of the second vanishing point. Note and remember: in picturing right-angled objects, the two lines joining the vanishing points by meeting at the station point always meet at a right angle.

Measuring Point.—A point on the horizontal line to which a line is drawn from a measurement or a scale on the base-line. This line is called the measuring line.

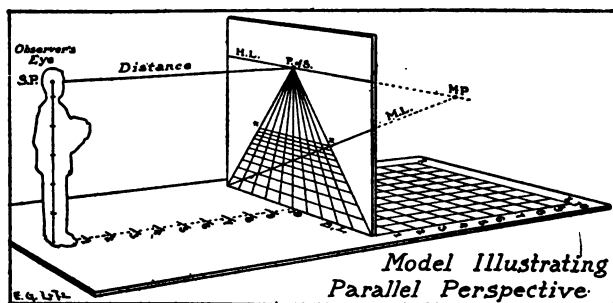
A measuring point is obtained by centring the compasses at a vanishing point and drawing an arc from the station point to, and cutting, the horizontal line. The measuring point so obtained

is used for determining or fixing lengths on lines going to its particular vanishing-point. In parallel perspective the measuring point and the station point are equidistant from the point of sight.

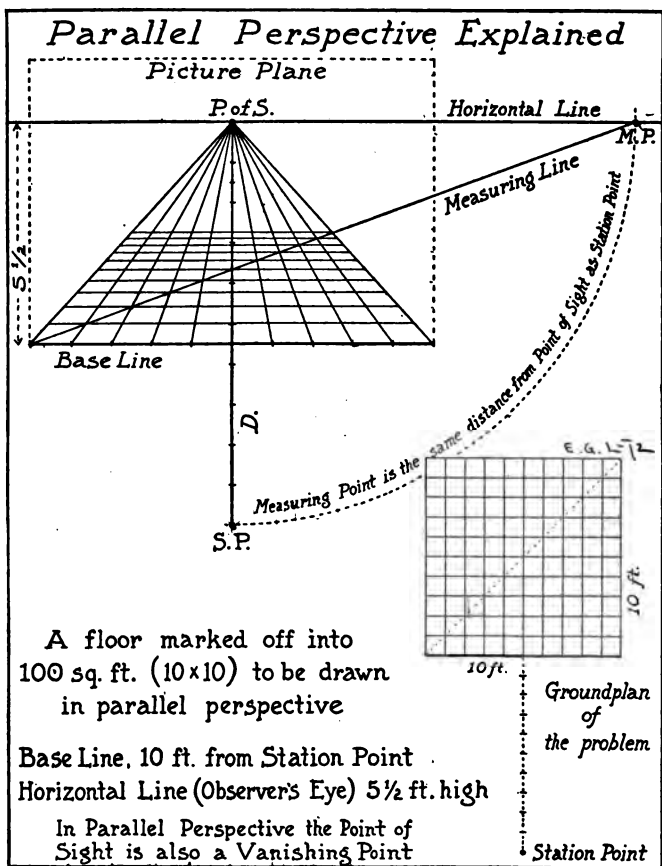
Measuring Line.—A line to the measuring point from a measurement on the base-line. Where it cuts its respective vanishing line it will determine, perspectively, the measurement.

Vanishing Lines.—Parallel lines that, in a perspective projection, recede and converge to a vanishing-point.

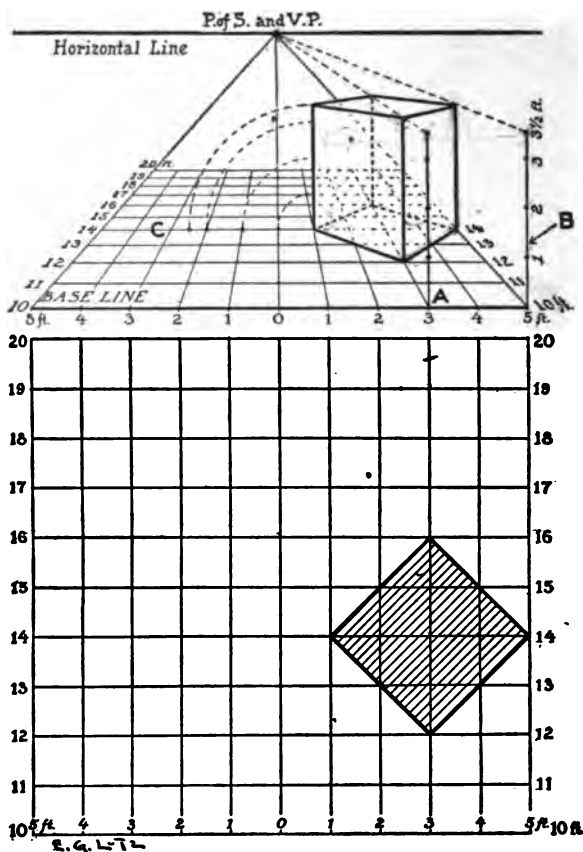
Scales and Measurements are marked on the base-line. *A Vertical Scale* can be erected on the base-line.



Of the two kinds of linear perspective, parallel, generally speaking, is the less complicated. Anything can be presented according to its rules, although it is not always the most practical way of working. But the method is easily explained.



The ground-plan of the subject or group of objects is ruled off into a block of squares; and a block of the same number of squares is put in parallel perspective. Now, square by square, the details of



VERTICAL MEASUREMENTS IN PARALLEL PERSPECTIVE.

The diagrams show the ground-plan of a box and its position on the floor, and the floor in perspective with the box drawn in its proper place.

Vertical measurements can be obtained in two ways:

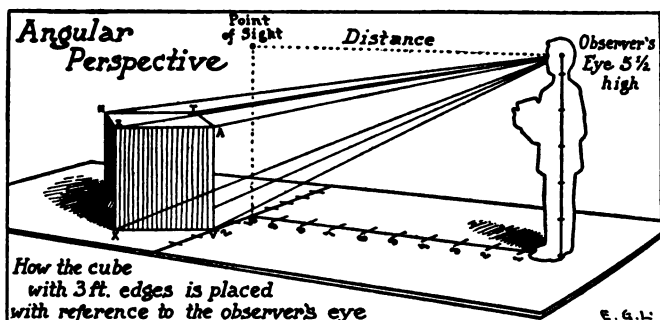
1. Draw perpendiculars to the base-line—A and B. The required height ($3\frac{1}{2}$ ft.) is procured from the scale on the base-line, marked on the perpendiculars and vanishing lines run to the points wanted, where they will mark the required heights.
2. The required height ($3\frac{1}{2}$ ft.) of that edge of the box resting on line C is found and marked off from this line C.

the ground-plan are copied on the perspective projected block of squares. This, however, gives you only outlines of things as they appear in a ground-plan. To get up-and-down dimensions vertical measurements are necessary. These in parallel perspective are obtained in two ways.

Now, as the picture plane rests on the base-line, sizes marked on either would be the same. So any size wanted can be obtained from the scale on the base-line, set off on a vertical on the picture plane, and carried back; that is, beyond the picture plane—by converging lines to the vanishing-point, which point in parallel perspective is also the point of sight.

The other method is to take measurements from the different horizontal lines beyond the base-line. For instance, if each of the horizontal divisions of the plan represents one foot, that can be divided into twelve inches. Then a desired height at any point can be established by erecting there a vertical line and marking the desired height from the scale of inches to be found on the particular horizontal line on which it rests.

Angular perspective is demonstrated by the seven plates included in this chapter. They show, step by step, how to picture a cube in perspective. It will help in working out the problem in first marking a floor with the specifications of the problem.



ANGULAR PERSPECTIVE.

(SEE PLATES ON THE FOLLOWING SEVEN PAGES.)

A cube with edges 3 ft. long is to be drawn in angular perspective.

Observer's eye $5\frac{1}{2}$ ft. high.

Base-line 10 ft. off.

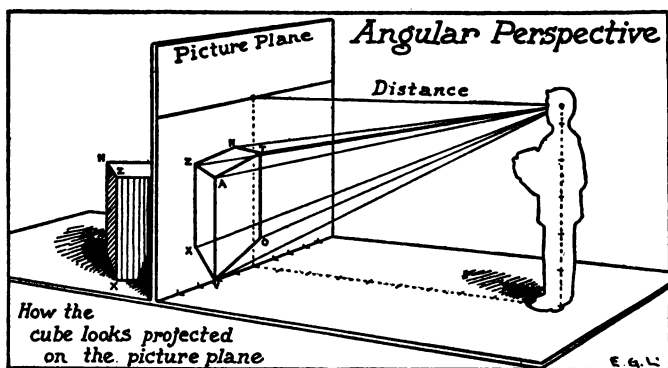
Width of picture plane 10 ft.

One corner of the cube touches the base-line 2 ft. to the left of the centre. Place it at any angle—with reference to the base-line—that you please.

Make the lines in the order as numbered.

For key to abbreviations, see engraving on page 133.

Instead of a cube, take an ordinary wooden box and use its dimensions. A chair, a table, or group of objects can also be used as models.



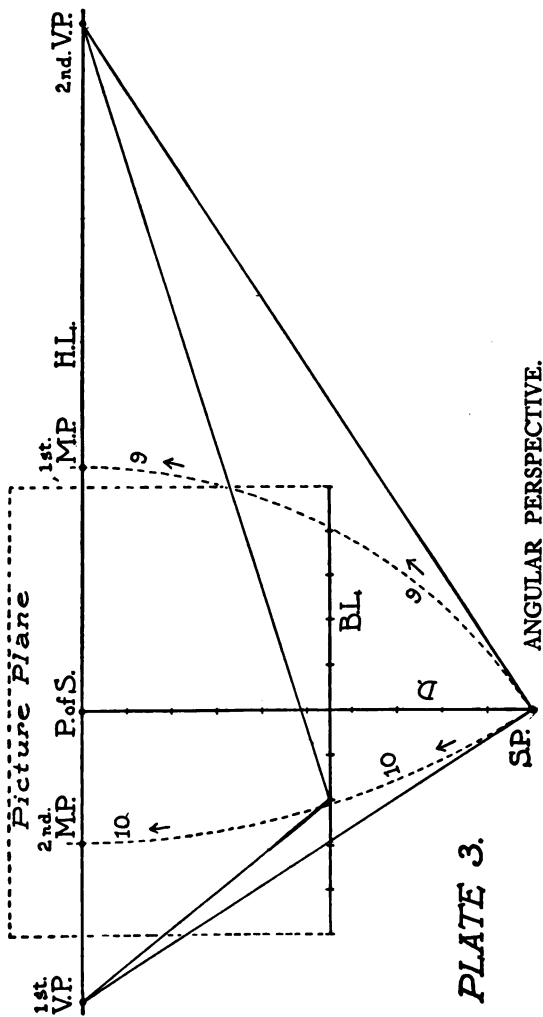


PLATE 3.

ANGULAR PERSPECTIVE.

The length of the receding edges of the cube can be exactly fixed. To do this you must first find the Measuring Points. With the 1st Vanishing Point as a centre, draw arc 9 from the Station Point to and cutting the Horizontal Line. This gives the Measuring Point for lines running to the 1st Vanishing Point. The other Measuring Point is found by drawing arc 10 from the 2nd Vanishing Point as a centre to and cutting the Horizontal Line.

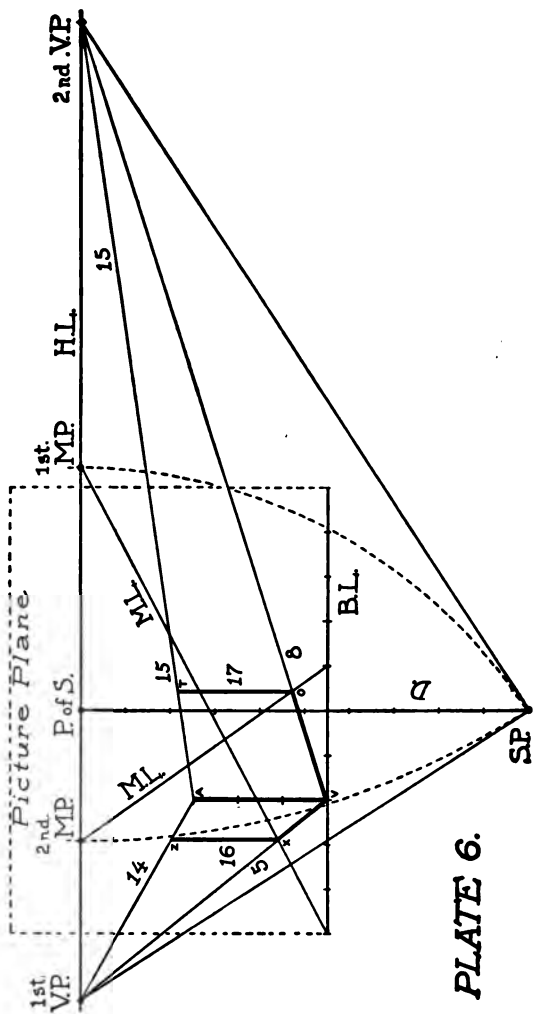
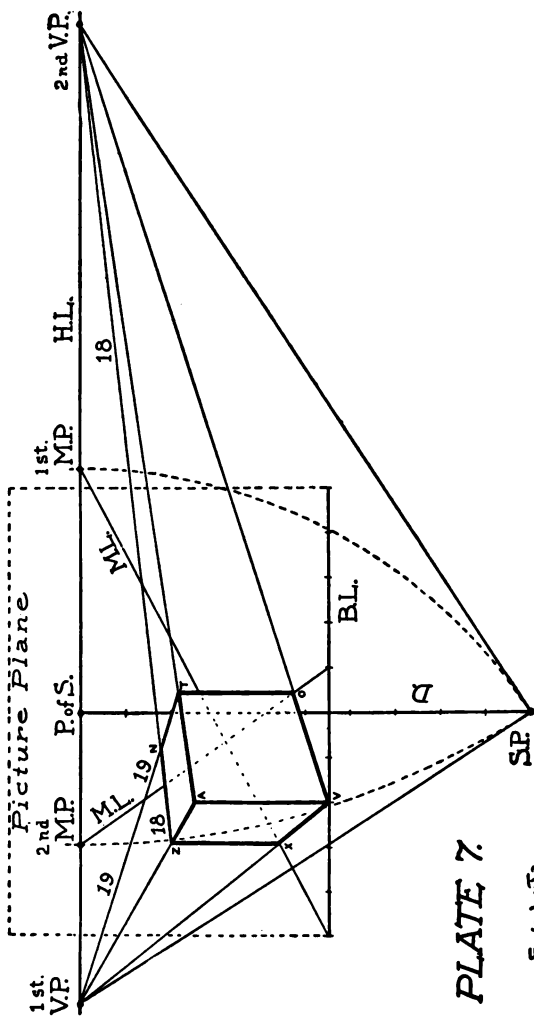


PLATE 6.

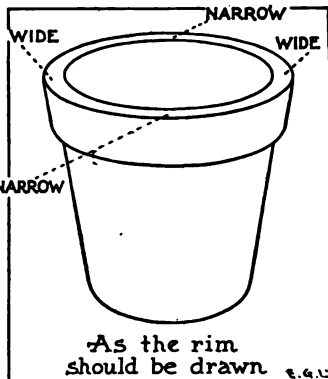
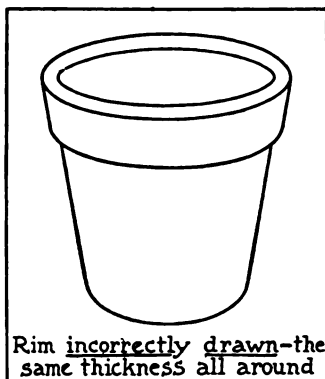
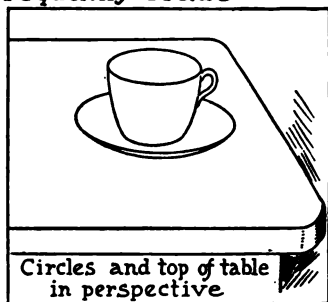
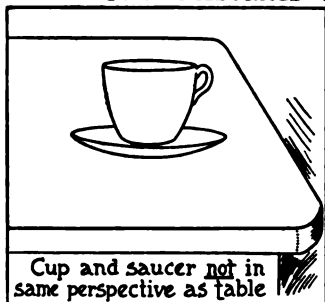
ANGULAR PERSPECTIVE.

From (A) lines 14 and 15 drawn to their respective Vanishing Points give the directions of two more receding edges of the cube. At (X) on line 5 and at (O) on line 8 mark the places of the two far corners of the cube resting on the floor. From these points draw the vertical lines 16 and 17. Where they cut lines 14 and 15 at (Z) and (T) two more corners of the cube are determined.



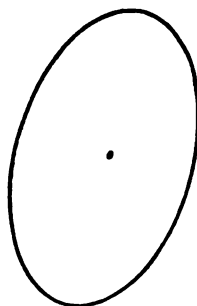
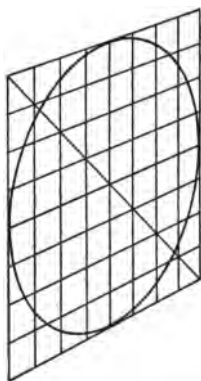
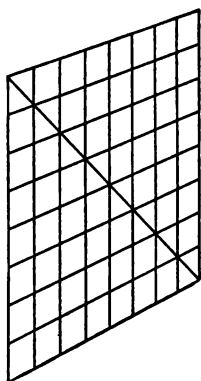
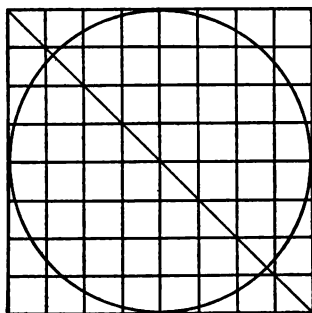
ANGULAR PERSPECTIVE.

The outline of the cube projected on the Picture Plane can now be completed by drawing to their proper Vanishing Points the lines 18 and 19. At (N) where they cross, the far corner of the cube is established.

Two Mistakes Frequently Made

ADDITIONAL MATTERS ABOUT PERSPECTIVE

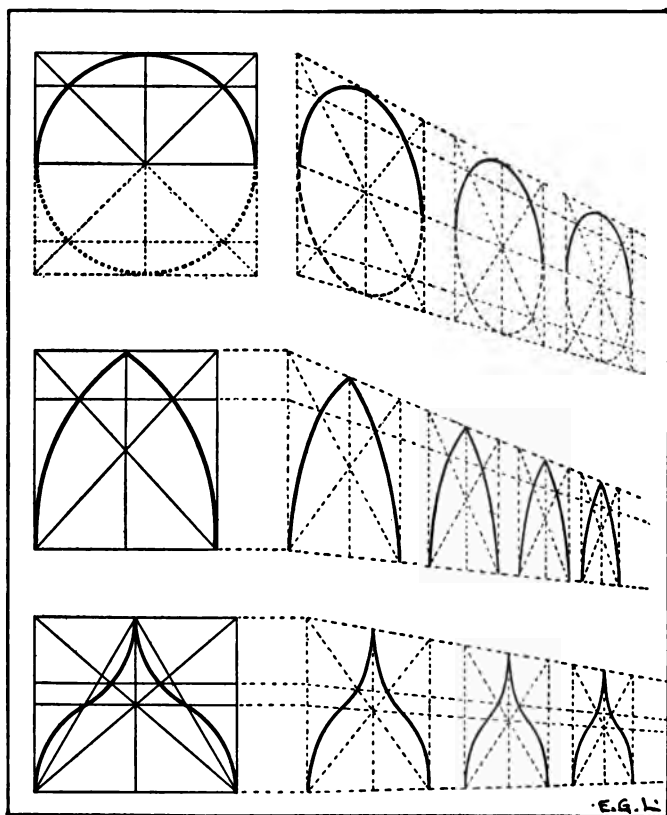
A direct front view of a circle assumes no change in form and can be described with the compasses. But when it takes some other position with reference to the eye, it has an outline that cannot be constructed with the ordinary drawing instrument. In this case the outline is an ellipse. The way to



E.G.L.

DRAWING A CIRCLE IN PERSPECTIVE

get this elliptical outline is to use a modification of the method of copying by squares. The circle is enclosed by a square, which is divided, checker-board fashion into a number of smaller squares. Then a square is put in perspective and filled in with the same number of smaller squares. Now the

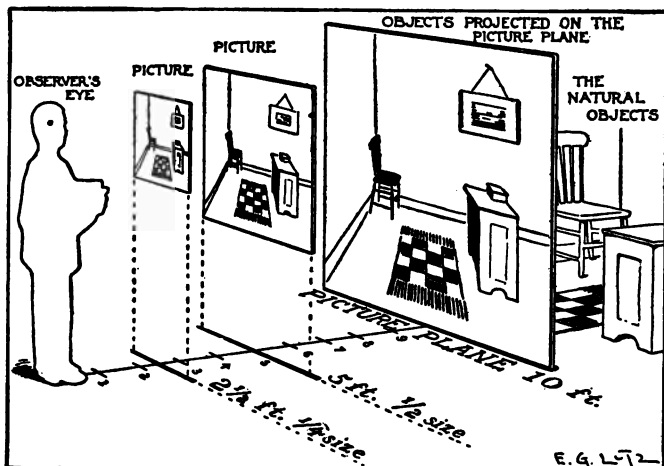


DRAWING CURVED WINDOW OPENINGS IN PERSPECTIVE.

curving line can be copied by noting the points where it cuts the lines that define the small squares.

A similar method is applicable for curves of window openings and doorways. Enclose the plan

of the curve in a right-angled form—square or oblong, whichever kind it suits. Put a like form in perspective within which draw whatever diagonals, verticals, and vanishing lines will help in fixing points that make the copying of the curve easy.

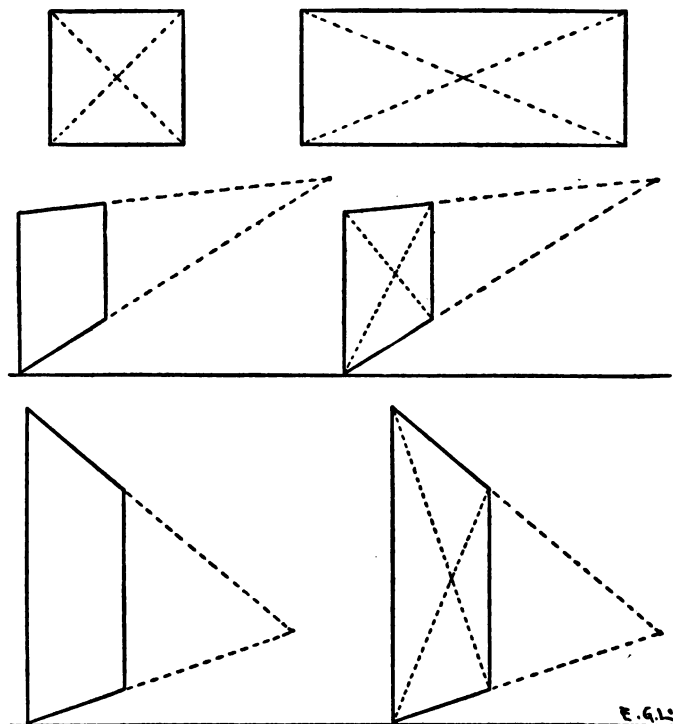


Determining the size of the picture

Then rule the enclosing right-angled form with corresponding lines and copy the curve as you would in copying by squares.

It is a simple matter to find the centres of rectangles or squares in perspective by drawing the diagonals. This is the way to find the middle of an end wall of a building so as to draw a vertical line to the ridge of the roof.

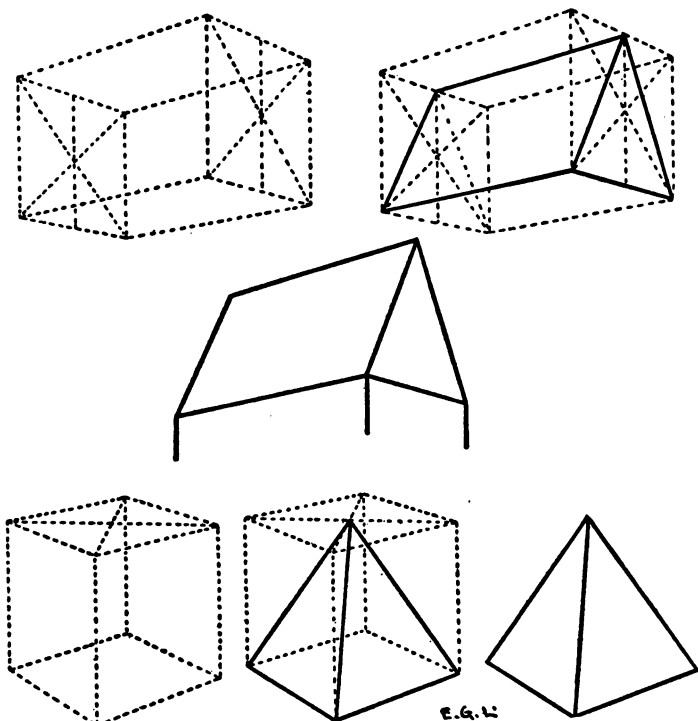
The slanting lines, defining the ends of an ordinary ridge roof, could be drawn to vanishing points. But in most cases these points are beyond the limits of the



FIXING THE CENTRES OF SQUARES AND RECTANGLES IN PERSPECTIVE.

drawing-board, so that it is necessary to draw them in some other way. This can be done by first putting a box in perspective, of the proper size, and then with diagonals and centre lines finding the points to which the slanting lines are drawn.

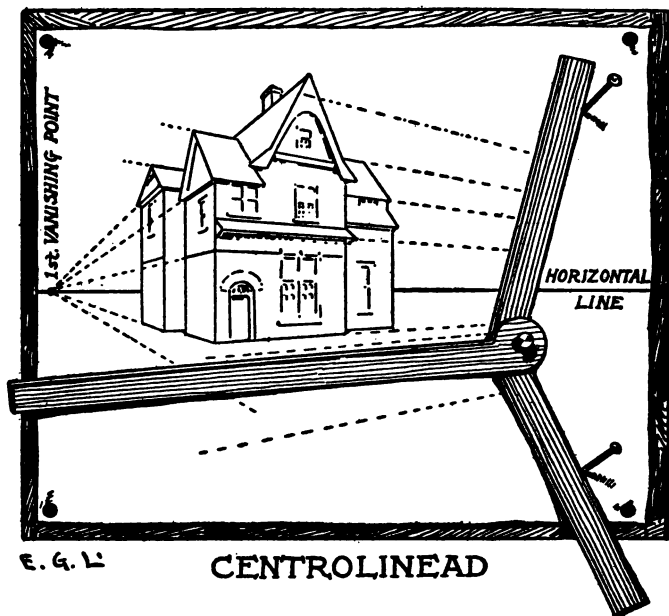
Anything pyramidal in form should be enclosed, to render it in perspective, within a skeletonized box of lightly drawn lines.



BY FIRST CONSTRUCTING SKELETON BOXES, THE PERSPECTIVE LINES OF OBLIQUE-ANGLED OBJECTS ARE EASILY DRAWN.

The centrolinead is an instrument used in drawing vanishing lines when the drawing-board is too small for the vanishing point. It consists of a ruler, to one end of which two arms are fastened by an adjustable bolt and nut. Two nails are driven into

the board, one below and one above the horizontal line. The three parts of the centrolinead are so set that they are like the letter Y—the ruler the stem and the arms like the upper parts of the letter.



When using, the inside edges of the arms are run against the two nails and radiating lines procured in moving the instrument along.

The angles at which the arms are set to each other, and to the ruler, and the places and distances apart of the nails in the board determine the degree of divergence of the vanishing lines.

PICTORIAL COMPOSITION

VIII

PICTORIAL COMPOSITION

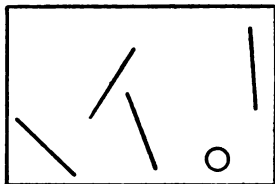
THE average drawing made for book or periodical is usually either a mere descriptive illustration to the text or a character sketch solely put in to relieve the monotonous gray type mass. In the making of these, the principles of pictorial composition are not always employed.

This should not be so. It would be better if illustrators gave more attention to the ideas underlying artistic pictorial construction. The rules are not set and prescribed formulas that are to be followed minutely. In fact, the matter might almost be put in this way: An artist decides on a certain kind of composition, then tries to see how far he can get away from this particular composition without really losing sight of it as the basic feature of his picture. He adheres, in spite of variations and modifications, to the general structural arrangement in his mind at the beginning.

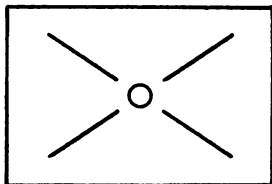
That every picture should have some point of interest is the first rule to remember in art composition. Sometimes this point of interest is rep-

resented by a spot of light, a note of color, or a figure or group in bold and clean-cut silhouette against the rest of the differently toned picture. Or, again, it may be a face, strong in character or

ONE THEORY OF PICTORIAL COMPOSITION.

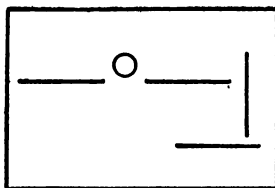


1.

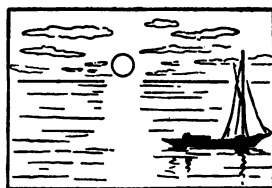


2.

1. Circle and lines put in haphazardly; lacks real art interest.
2. Attracts attention at once because it shows that thought was used in the arrangement. But the design idea too evident; leaves nothing to the imagination.



3.



4.

3. Again thought is exhibited in the disposition of the components. The non-symmetrical arrangement excites interest—the element of mystery there.
4. Simple pictorial composition built on the preceding diagram.

expression, properly lighted and set off by contrasting tones or background. But this is not all; the point of interest, whatever it may be, together with the other components of the picture, must be so arranged that they form a pleasing totality.

Now, exactly why one combination of lines,

masses of tints, or spots and areas of colors pleases, and another does not, is a difficult question. But it is the function of the theory of pictorial composition to answer it by formulating and setting forth rules and presenting them in an elucidating way so that they will help in producing pleasing works of art.

Seemingly without any special striving, some craftsmen create effective and charming things; but most of us are obliged diligently to apply ourselves until we understand and absorb the rules governing good picture-making and the principles of beauty in constructing art objects. On examining the work of some artist of talent, these qualities are seen to be conspicuously in evidence: sincerity, confidence, skilled technique, and a revealing throughout the work of a thorough mastery of tools and material. These qualities are all essentially present in a good picture, yet they are not dwelt upon, as a rule, in a treatise on pictorial composition.

As generally understood, good composition means the grouping of the different parts of a picture in a kind of geometrical arrangement of lines and spaces.

The simplest type of the well-composed picture is the diagonal or angular. In this an oblique line separates the space into two triangular areas, one in light and the other dark or in shadow. Now, if

the dissimilarity between these two contrasting areas were exactly marked along the diagonal, the result would be something not at all a picture. To approach the pictorial, the dark part must be broken up with light, and some of the darker shades must run over or break into the light space.



DIAGONAL COMPOSITIONS.

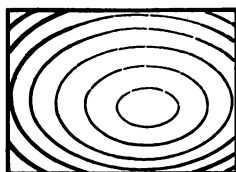
Two of Rembrandt's etchings in which the lights and shadows have been simplified.

A knowledge of what constitutes good composition is best gained by observing, studying, and reflecting on the works of the masters. For on attentively considering good pictures you will notice how certain of their components are disposed so that they form some kind of a geometrical figure; plainly apparent, yet not obtrusively obvious.

Especially deserving of study in this respect are the works of Rembrandt. His paintings and etchings with their effective handling of light and shade

are so many object-lessons. Much may be learned, too, from the wonderful canvases of Turner. Turner had a gift, showing plainly in his work, of creating interesting pictures by building them on certain

Turner's
Compositions



Concentric
Ellipses



THE BAY OF BAIE



VIEW OF ORVIETO



CROSSING
THE
BROOK

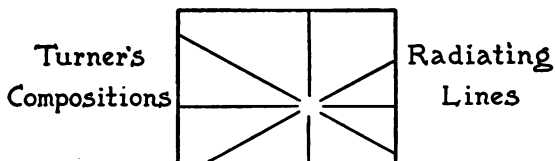


APOLLO AND DAPHNE

favorite arrangements of lines. In a work by him, the basic idea or design, though clearly apparent, excites interest, mystifies and holds the attention by the subtle way the composition is diversified and varied.

Some of Turner's paintings betray a fondness for an arrangement that, if epitomized into a diagram,

would exhibit a series of concentric ellipses, the central and smallest holding the point of interest. This inside ellipse is never in the centre of the area of the picture but a little below and either to the right or the left of the centre.



ULYSSES DERIDING POLYPHEMUS



CHICHESTER CANAL



APPROACH TO VENICE



THE FIGHTING TEMERAIRE

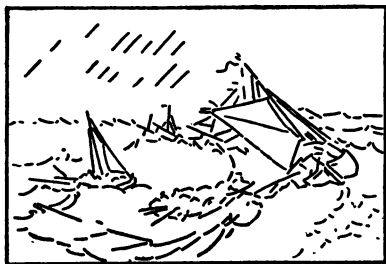
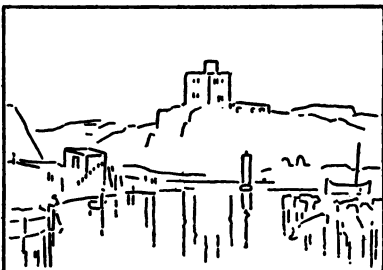
Another diagrammatic representation, again, of a type of composition used by him, shows radiating lines with the point from which they start a little bit away from the centre of the picture space.

Many of Turner's compositions exemplify the important part character and kind of line play in carrying out an idea or in helping to explain the

story of the picture. For instance, in a pastoral called "Norham Castle," all peaceful and tranquil, the lines are straight and most of them vertical—

*The Significance of Line shown
in two of Turner's pictures*

Simple straight lines
mostly vertical,
expressive of
tranquillity,
proper to this
peaceful
pastoral of
Norham Castle



Short broken lines,
slanting at
various angles,
full of meaning
in this picture of
restlessness called,
The Shipwreck

a quality of the components all thoroughly adapted to this quiet scene.

As a contrast is a turbulent waterscape, entitled "The Shipwreck." In this composition the lines are short, broken, and going in different directions, all apparently in a confused jumble, but withal a definite and forcible design arrangement is evident.

An excellent way of getting an insight into picture-composing is to make miniature sketches in your note-book when studying the canvases of the masters. Arrange the chiaroscuro in simple broad effects of white and black and do not trouble about the details. Make them in ink, say, with a fountain-pen. It will be a good test of simplicity, this miniature pen sketching. Some works, for instance, that are an intricate collection of highly finished costumed figures, do not come out well in this sort of a trial. You will understand why such works, in spite of all the scrupulous care bestowed upon them, cannot be considered as great works of art because they lack one big thing—simplicity.

When sketching from nature—pencil, water-color, or oil—carry in your kit a little view finder of cardboard to help in selecting well-composed bits of landscape. It is easily made, consisting of but a frame of cardboard with the opening a rectangle of the same proportions as the larger rectangular shape of your canvas or sketch-book page. The cardboard should be of a dark tint, or blackened with drawing-ink.

Hold this little frame between the eye and the contemplated view and move it along until it encompasses a section of the landscape to your liking. Many unexpected pictorial effects are found by the aid of this little contrivance.



ZURBARAN



BREKELENKAM



WEENIX d. A.



REMBRANDT



RIBERA



WILLEM KALFF



CUYP



KESSEL



CUYP



JAN BOTH



VAN DE VELDE



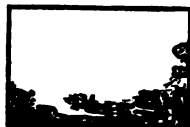
WYNANTS



WYNANTS

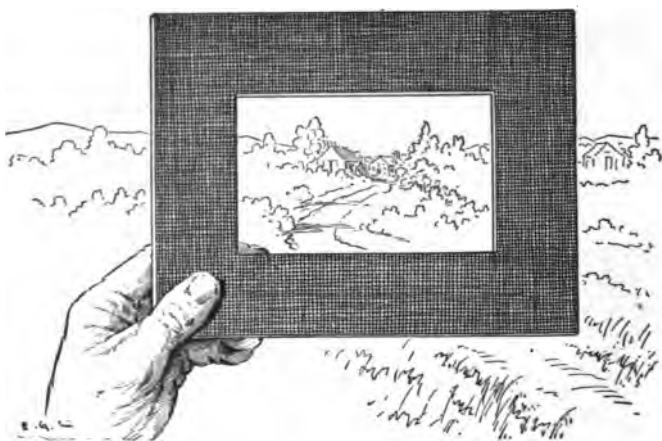


WYNANTS



CUYP

The making of little note-book sketches when visiting galleries of the old masters helps in the appreciation and understanding of good picture-composing.

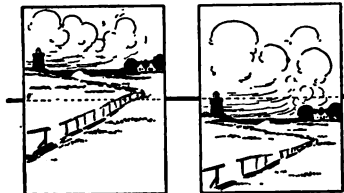


SMALL FRAME OF CARDBOARD—AN AID IN PICTORIAL COMPOSITION.

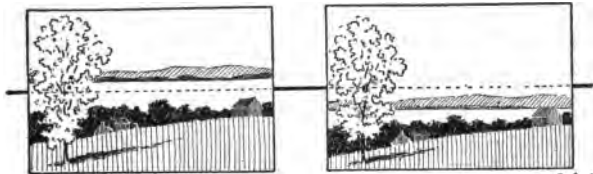
The use of this view-finder also enables the sketcher to fix the place of an important item in a landscape: namely, the horizon. In a landscape sketch the horizon should either be above or below the middle of the picture. That is, the particular shape that you have decided on for the picture must not be divided into two equal parts by the horizon.

According to some artists, every landscape, to be considered as artistically put together, should have these three planes, not necessarily obviously, but discernibly on analysis, marked: (1) Foreground, (2) middle ground, (3) distance.

In Sketching from Nature



Place the
horizon either
above or below
the middle



Try to get
these
Three Planes
in a
Landscape



3. Distance
2. Middle-
Ground
1. Foreground

ON LETTERING

IX

ON LETTERING

AS every one learns to write, that is, draw the letters of the alphabet as they appear in the ordinary running hand, so every one should learn to draw them in the forms that they present on the printed page.

The Roman alphabet, the character of the type with which books and periodicals are printed, is the basic form of nearly all modern ornamental and decorative lettering. Artists, as well as designers and draftsmen, should understand the construction of these letters and become proficient in delineating them with exactness and artistic nicety.

For general lettering, or simple marking and labelling, an alphabet of characters of a less complex form is more suitable than the Roman. For this the single-stroke letters as shown in the two plates are good ones to study and use. They are very easily made, and a knack of "printing out" words with a facility almost equal to writing can be acquired with a little practice.

GENERAL HINTS FOR STUDYING AND PRACTISING THE SINGLE-STROKE LETTERS

(1) To indicate the height of the capital letters, lightly rule two parallel lines and exactly half-way between them another line to show the size of the small letters. These three lines are the guide-lines. They should always be made in designing work and drafting; but for ordinary labelling or card-index lettering, you will no more need them, after a little practice, than you do guide-lines in writing.

(2) Use a stub pen, held in the ordinary way, or with the penholder between the first and second fingers and the thumb placed against it near the insertion of the pen in the socket.

(3) Keeping the letters broad and full will fix a habit of making them distinct and readable.

(4) Note how the various letters fall into classes with similar constructive elements. Many of the small letters, for instance, can be formed with a circle as a foundation. It is a great help to keep this circle idea always in mind.

(5) In printing out words, keep the letters somewhat close one to the other; and—which is very important—have plenty of space between the different words. This insures legibility.

(6) Try, when practising, to make the letters with the simplest possible strokes indicative of that

E F H I L T
 M N Y Z
 A V W X K
 B R P D
 O C G S U J
 a b c d e g h
 o p q s u n m
 f i j l t k r
 v w y x z &

SINGLE-STROKE LETTERS.

particular letter. An individual style, which means adding a little flourish or curve here and there, and to which no objection can be made, will develop later on when you begin to make a practical use of your skill as a letterer.

(7) The cross-bars of the capitals E, F, and H are placed a trifle above the central guide-line.

The letters of the Roman alphabet are much more difficult to draw than the single-stroke letters. It would be a distinct advantage, nevertheless, for every one who draws to learn how to construct them. When you are able to draw the Roman characters, even with slight skill, you will have your hand trained to execute any style or kind of lettering. Examples for copying can be found everywhere. The printed characters on the text pages of a book or magazine are too small for study, but a glance through the advertising pages of a periodical shows a great diversity of faces of this particular family of type characters.

IMPORTANT THINGS TO NOTE AND REMEMBER IN DRAWING THE LETTERS OF THE ROMAN ALPHABET

(1) Points on letters like A, M, N, V, and W cut through the guide-lines.

(2) Round letters or curved parts of letters, as in O, G, S, and R, go slightly over guide-lines; or, better said, are a little bigger than the other letters.

*Important Things to Remember
in Lettering*

A N V

Points as on above letters cut through guide lines

O G R

At top and bottom, curves go slightly over guide lines

E F H

Cross-bars above middle line

S B X

Upper parts of these letters smaller than lower parts

⦿ a b c d e

p q r s

h m n u

⦿ o ⦿ g

i j l f t k

v w x y z

ROMAN ALPHABET, SMALL LETTERS.

E F L H T

A V W

M N I J U

K X Y Z

O Q C G D

B R P S. E. G. 12

ROMAN ALPHABET, CAPITAL LETTERS.

(3) Cross-bars in E, F, and H are a trifle above the middle.

(4) Upper portions of B, S, X, and Z are a shade smaller than the lower portions.

(5) In P and R the upper portions are also generally smaller; but it is not always necessary to adhere to this rule if making them differently helps spacing.

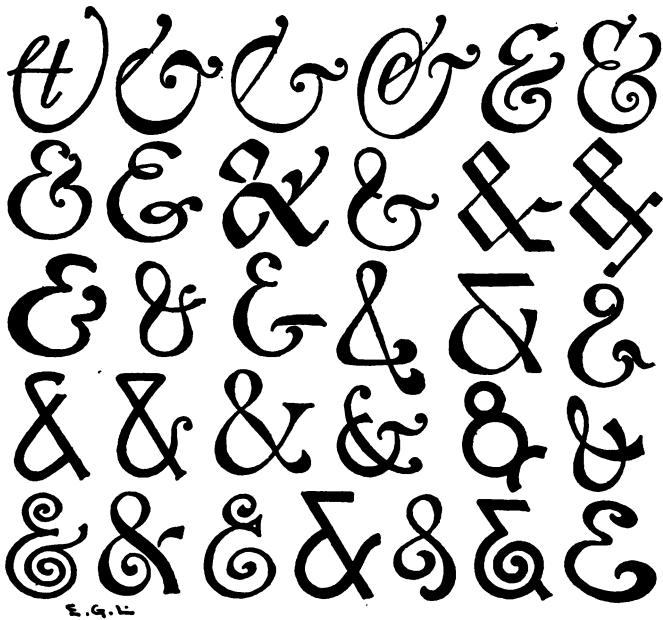
(6) Always draw guide-lines before beginning lettering, one at the top and one at the bottom, and one a trifle above the middle to mark where the cross-bars come and help in getting the slight differences in sizes between the upper and lower parts of certain letters.

(7) Use, where practical, the spring-bow drawing instruments (pencil and pen) in making the curved parts of letters.



In these letters upper parts, usually above middle line, but this may be changed for variety, or if it helps spacing.

Now the reason that points of letters and curves are drawn slightly over the guide-lines is that they would otherwise look too small, and not keep to the alignment if they were made the same sizes or kept within the limits of the guide-lines. This will be clearly understood if you test it by drawing a



AMPERSANDS.

The first four characters of the top row are logotypes for *et* (and), occurring in some early printed books.

row of letters of a uniform height and among them make A's, V's, G's, and O's, keeping the whole body of these letters within the guide-lines. You will see at once that they appear to be smaller than the rest of the letters. To have them look right it is necessary to draw them as advised above.

If E and H are made with the cross-bars exactly in the centre they look ungainly and top-heavy. Likewise, S, B, and X, if drawn with the top and bottom exactly the same size, do not look well.

Especially is it very essential in the case of S that this difference in size between the two parts be made. Sometimes artistic letterers, if it pleases their fancy, break all the rules of lettering—it seems as if they have learned the rules only to transgress them—but there is one thing that never looks well and that is to have the S drawn top-heavy.

Spacing, or the placing of the letters in a word side by side so that the intervals between them appear, relatively, to be the same, requires a great deal of skill. Those endowed with a natural talent for decoration do it intuitively and draw a line of letters with the same ease that is ordinarily employed in writing. But if it happens that you haven't this gift naturally you must study until you can space letters with facility and—seemingly—without effort.

Mechanical draftsmen, usually, in lettering make the distances between the characters exactly the same. This they do by careful measuring. But it is not spacing. No doubt, you have noticed such lettering; it has a quaintness all its own and when the method is consistently adhered to has a certain individual quality.

The kind of spacing that interests the artist and designer is that in which the letters and intervening spaces of a word are so disposed that they make a harmonious arrangement. This cannot be ac-

1 LIBERTY

LIBERTY 2

3 LIBERTY

LIBERTY 4

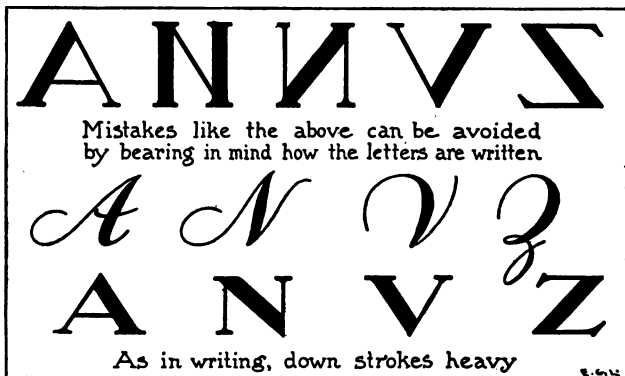
E. G. L. 5 LIBERTY

SPACING.

1. Actual distance from the body of one letter to the next measuring the same; but the effect is inartistic—some letters too close and between others too much space.
2. Letters spaced so that the areas between the different letters appear of the same value.
3. Difficulties of spacing obviated by variety in the forms of the letters.
4. Spaces filled up with scrolls. A favorite expedient in ornamental designing.
5. Shadows, or lines suggesting shadows, put in where spacing is difficult; or to make poor spacing less obvious.

completed by exactly measuring the intervening spaces, but only by the exercise of one's artistic and decorative feelings.

Sometimes the forms of certain letters are changed or a scroll or a curlycue added to fill in where too much white space shows. In words difficult to space properly, a line or a tint like a cast shadow is put in.



Having the letters S and N going the wrong way are two of the commonest faults of which novices are guilty. And in certain other letters they put the heavy strokes on the wrong side. There is no excuse for these mistakes, as examples of the printed type are always at hand. Then again these mistakes can be avoided by remembering how the letters look when written in the Spencerian style of calligraphy.

A little expedient that helps in lettering, especially in spacing, is that of first blocking out the words on another piece of paper and marking them from that to the place intended for them. For this pur-

A A A A A B
 B C C D D E E
 E E F F F G G
 G G H H K K
 L L M M M N
 N N O O P P
 P Q R R R R R
 R R S S S S
 S T T T U V W
 W W X Y Y Z

VARIATIONS IN LETTER FORMS, MAINLY BASED ON THE ROMAN CAPITALS.

All things are the same
Wit is Quick in Straits
Enjoy the present
VIVERE EST COGITARE
The noise and crowds of a city
Watch Carefully
Life is ever changing

All of the above letters were made with the same broad-nibbed pen; differences in style effected by the way the pen and the holder were held.

pose the practical worker keeps a number of long, narrow strips of paper always at hand. Along the edges of these the sentences to be lettered are first sketched out and then "ticked" off to the drawing. You can see, by pushing the strip along to the right or to the left, where the letters and words should come. This insures too against the surface of the paper being ruined by much pencilling and erasing.

These narrow strips of paper are also useful in drafting and designing to mark off any series of measurements from one drawing (the copy) to another.

The designer who, after becoming an adept in drawing the Roman characters, wishes to continue the subject will not only find it a profitable, but a

**Vogel von gleichen Federn
fliegen gern beisammen**

**Bij nacht zijn alle
katten graauw** S. G. 14

BLACK LETTER, DRAWN WITH A REED PEN.

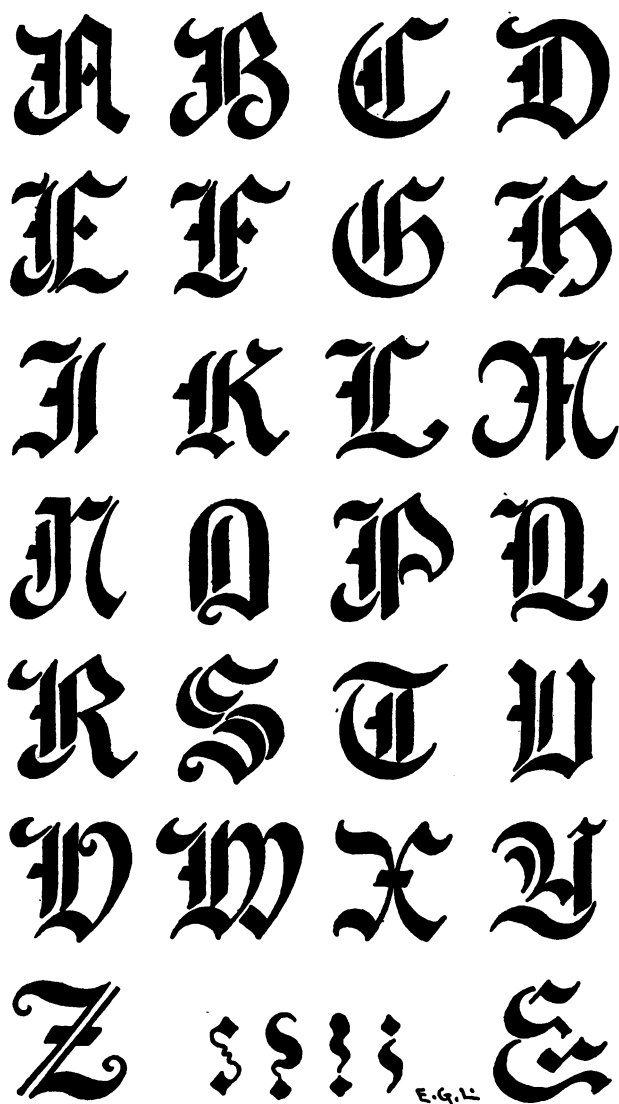
pleasing and fascinating, study to go to the original sources for his models. As, for instance: old manuscripts, early printing, and especially title-pages of old books.

Old black letters—English, Gothic, or German—either from the illuminated or printed pages, abound in suggestions for the artistic letterer. Many little odd shapes of characters will be noticed. The ancient scribe displayed his skill and individuality in the fanciful twists, curves, and flourishes that he added to the letters.



SMALL CHARACTERS OF A TYPICAL BLACK-LETTER ALPHABET.

In studying the old black letter, some of its peculiarities will no doubt puzzle you. As a help in understanding the why and wherefore of these peculiarities and the arrangement of thin and heavy lines it is a good plan to copy the letters with a pen as nearly as possible like that with which they were



CAPITALS OF A TYPICAL BLACK-LETTER ALPHABET.

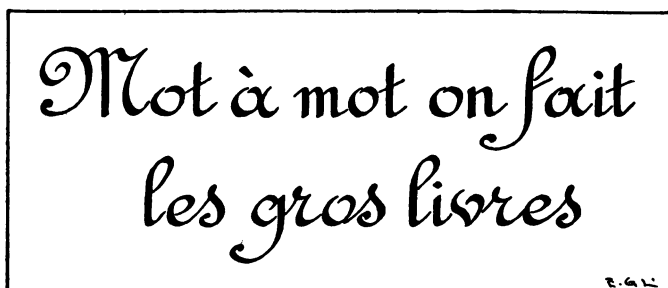
anciently limned. A real goose-quill, cut with a broad nib, would be the proper instrument if you could get it. But, in default of it, an easily yielding stub pen or a broad lettering pen will do. A reed pen is a most excellent tool to use in studying the black letters.

Reed pens are used by Arabians and kindred people to write their charmingly decorative calligraphy. This pen is made from the hollow stalk of a reed growing in Egypt. It is about the size of an ordinary penholder, one end cut obliquely, somewhat pen-like, with the point or nib either broad or narrow as wanted. Most likely you will not find any of these pens at the stationer's, and if the local rug repairer or Oriental shopman cannot supply you, the best thing is to content yourself with a broad-nibbed lettering or engrossing pen. Drawing-ink does not flow very readily from the reed pen and you will find it better to use ordinary writing-ink.

Lettering pens are the only ones to employ for drawing, or rather writing, the beautiful French script, so as to give it its own particular individual character. In this case, again, writing-ink had best be used so as to insure a free flowing of the ink in forming the letters. If the design so made is intended for reproduction it can be strengthened with drawing-ink.

Here is a way of making lettering sketches where

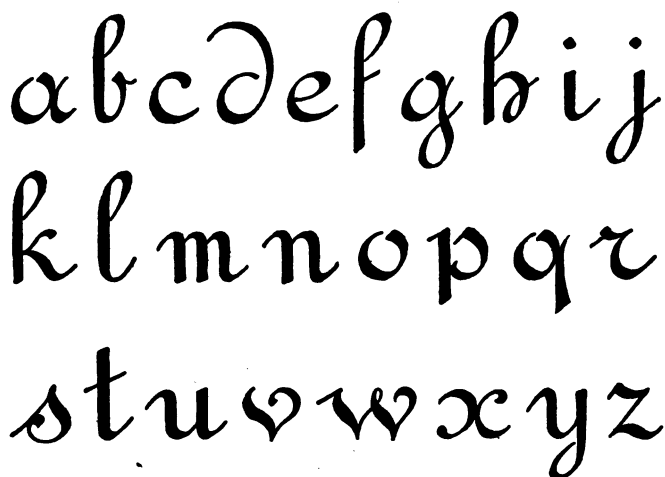
fine lines are required, as in script or copper-plate printing. Rough out the words on a sheet of heavy bristol-board, then, when sketched out, clean off all pencilling not wanted with a soft rubber and lay over the whole surface of the cardboard a thin wash of Chinese white. There will be, when this is dry, a clean white background with the sketched-out



RONDE, OR FRENCH SCRIPT. DRAWN WITH A LETTERING PEN.

letters showing underneath just sufficiently to enable you to mark them sharp and clear as a finished sketch. The wash of white when dried presents a slightly gritty surface which allows you to make sharp delicate markings with a hard pencil.

The epitaphs of old tombstones, with their letters of antiquated forms, give many a hint to the letter designer. The student of practical alphabetics should not let any opportunity slip of making, if permitted, rubbings of curious inscriptions on old tombstones or monumental brasses. They are not



RONDE, OR FRENCH SCRIPT, SMALL LETTERS.

difficult to make. The generally accepted materials are heel-ball, thin but firm-textured paper, and bits of wax to fasten the paper in place in case there is no one at hand to hold the paper to keep it from shifting. Heel-ball is a waxy substance which cobblers use in blackening heels. It can be procured at the dealer in shoe findings. However, a large, thick black crayon, used in marking parcels, that is found at any stationer's, will do quite as well.

Before beginning the rubbing, place the paper over the inscribed lettering and fasten it in position with the wax. Now rub a flat side of the heel-ball (or the crayon) rapidly across the paper so that it makes an impression of the letters or design. All

A A B B C
 D D E E F
 G H I J K
 L L M M N
 O P Q Q R
 R S T U V
 W W X Y Z

RONDE, OR FRENCH SCRIPT, CAPITAL LETTERS.

this, as you see, is like taking an impression from a medal or an ancient coin by rubbing the flat side of a pencil lead across a piece of paper placed over the coin or medal.

THINGS NEEDED FOR LETTERING

Besides pencil; drawing-boards, and papers and cardboards of various kinds, one needs:

T-squares; one with a shifting head is helpful in drawing the oblique lines of Italic letters.

Triangles, or set-squares.

Spring-bow compasses, both pencil and pen. Use them in drawing small round letters or the curved parts of larger letters.

Pens; coarse writing, stub, lettering. Goose-quills and the reed pen.

Tracing paper.

Narrow strips of paper to keep on hand, for preliminary sketching out of words and sentences.

Drawing or ruling pens to ink in large letters.

Show-card writer's brushes for large free-hand lettering.

Black drawing-ink for process designs.

White paint to sharpen jagged and rough lines or edges in careful work intended for process reproduction.

Show-card writer's moist colors for large designs.

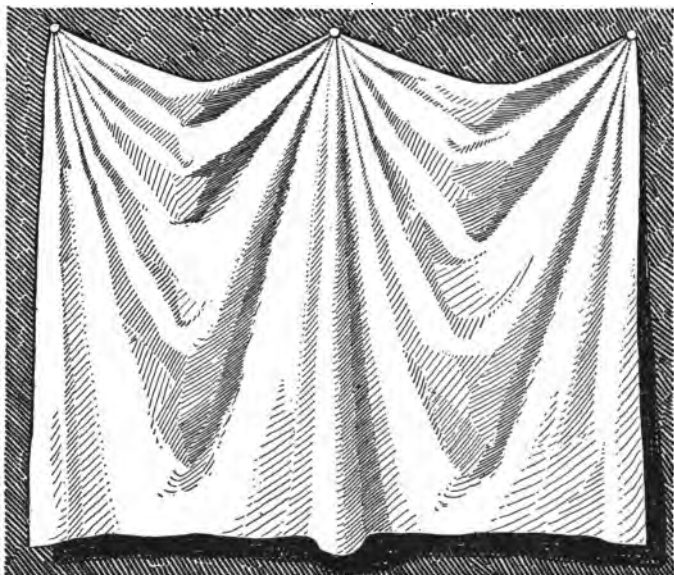
DRAPERY AND HINTS ON COSTUME DESIGNING

been developed, and selection is shown by the way the artist's personality asserts itself in choosing those folds, creases, and furrows that make a successful piece of work.

The illustrations in this chapter from the engravings by Dürer and Schongauer, and of the statuettes of the mourning monks shown in simple outlines, are presented to bring out a certain characteristic feature of drapery. This is that folds and furrows, considered as simple outlines or areas of tones, exhibit somewhat triangular or at times trapeziform contours. Again, lines defining drapery forms are never parallel. Even in a curtain with long horizontal ridges and furrows, there will be a tendency to the triangular, in that the defining lines converge to points of attachment and slightly flare out at the lower border of the curtain.

A semblance to the triangular seems to be the most frequent form that folds take in a simply draped piece of material. This peculiarity is well exemplified when some stuff is fastened and loosely hung between pins; the material will fall into a series of festoons that are outlined by the radiations that start from the fastening pins. Roughly described, these festoons can be said to be formed of a pair of long triangles each. In this illustration gravity pulls the material downward, and the two pins acting as resisting forces make, as it were,

three forces at work. This produces in some thin fabrics very sharply defined triangular forms, but in thicker or very heavy textiles a fourth force is brought into play, *i. e.*, the stiffness or special



nature of the threads and filaments of which the stuff is woven, which has a marked effect in modifying the triangular character of the drapery folds.

It is important that the artist remember this triangular feature of drapery; not with the idea of

getting a monotonous repetition of it in every study; but to help in seeing and understanding what he sees. Compare the manifold forms occurring in the different kinds of materials that come under your eyes when studying from draped figures.

In some goods of a pliable texture, the outlines and angles will be softened and the three-sided forms be nearly lost; whereas a stiff fibre in a coarse material causes a number of unexpected breaks at places, especially at the angles.

Laces and some delicate material cannot be successfully depicted by lines, particularly straight ones. So it seems that here there is an exception to the rule. On looking closely, however, it can be seen that the flounces formed by such stuffs are defined by what can be called curvilinear triangles.

Perhaps an example of what you consider a poorly worked-out bit of drapery comes under your observation. There is something about it that does not satisfy your artistic expectations. Very likely you are right. A critical examination will perhaps show that it is characterized by an entire absence of this triangular or trapezium-like feature of folds, creases, and wrinkles.

Of course, one must count upon some exceptions to this, as well as other, rules. For instance, in some subject for a character sketch, say, a needy person who has worn the same garments so long

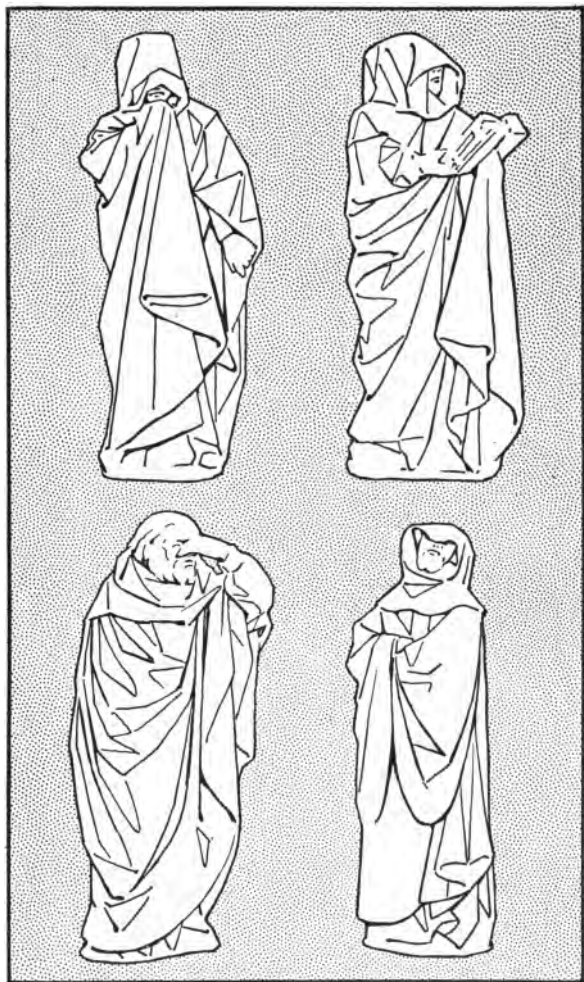


that they have become part of him. The material as it envelops his form shows very little of the triangular in wrinkles and folds.

Now place side by side, for the sake of comparison, a fashionably dressed person and a man in rags and tatters. Note how the elegant attire of the one has rigid creases, precise and formal lines and curves. No provision is made for human elbows or knee-joints in the tube-like sleeves and trousers, and when the limbs are bent the occurring creases break in a stiff and mechanical way. In the other subject the apparel has long since lost its distinctly textile character and has gradually moulded itself to the figure that it covers, and in sketching from him the human form must be considered. But not so in the case of the other subject. Here the whole object of the tailor apparently has been to conceal the outline of the human body, so that sketching any one clothed with fresh examples of the sartorial art requires just the knack, one might say, of drawing drapery well. This accomplishment is attained by merely paying attention to the triangular tendency in drapery forms.

This peculiarity, of which we have been speaking, holds with respect to statuary as well as pictorial delineation. A visit to a collection of plastic art will show that we can get hints on the treatment of drapery from the sculptor's works.

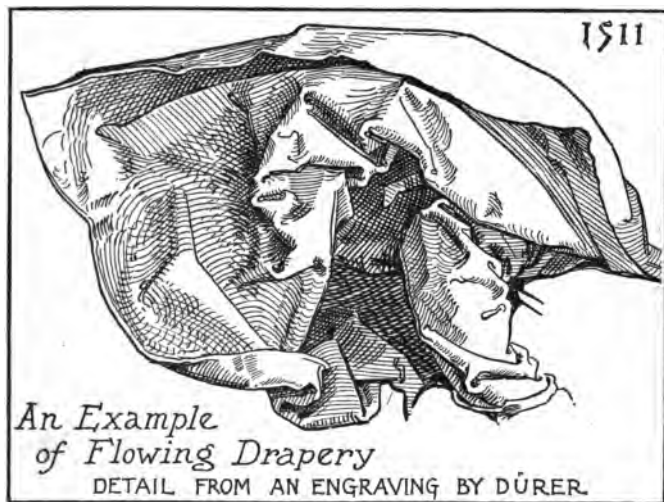
And from his way of working, too, we can learn what will aid us in drawing the attire of the clothed figure. You need to sketch, for instance, a bit of



FOUR OF THE STATUETTES OF THE PLEURANTS, OR MOURNING MONKS, IN THE DIJON MUSEUM.

Exemplifying the triangular in drapery folds.

drapery in action—a floating mantle, something fluttering in the wind, or part of a dress of a figure in movement. To help in getting these effects use a piece of coarsely woven cloth moistened with a



thin mixture of plaster of Paris and water. This you fasten to a board and arrange, while still moist, in accordance with the desired effect. Then when it has dried and the plaster has set you can sketch it with ease.

Another way, easier and likely to answer every purpose, is to take heavy but soft textured wrapping paper, moisten it and push into such similitude of moving drapery as you can, and then leave it to

dry. It will be necessary to tack it in places, either to a board or on the wall. In a model of this sort, it is best, rather than copy the creases of the paper exactly, to take only hints and suggestions and such lines and effects as are best adapted for the drawing. The details from engravings by Dürer shown



A HELP IN THE STUDY OF DRAPERY.

A roughly modelled statuette, and the same draped with a coarse material tempered with a thin mixture of plaster of Paris and water.

in this chapter look very much as if they had been drawn with the help of some such expedient as this.

For the more serious study of drapery, sculptors sometimes rough out a small figure in clay which they clothe with some thin material (cheese-cloth is good), moistened with clay water or dipped in a thin solution of plaster. The material while still moist is manipulated or pushed around until it is disposed to suit the plastic requirements. **Move-**

ment can be suggested in this clay or plaster-tempered material by blowing on it while it is still moist.

As a matter of course, more or less skill is needed in carrying out these little expedients just mentioned. A feeling for the decorative is required in fixing folds and creases in easy flowing lines and to make them fall in harmoniously proportioned masses.

For the artist with an originality of conception or the faculty of giving his work a whimsical turn there is no department of practical art that affords more scope for the exercise of his talents than that of designing stage or fancy dress costumes. Especially is this so in the planning of the multicolored apparel for spectacular entertainments.

Sketches for the dressing of a classical play or a tragedy of some stated historical period require serious and diligent research for correct details of the costumes of the respective period. For this kind of work the artist, besides consulting the recognized authoritative books on costume, such as Racinet, Hottenroth, Kretschmer, and Hope's "Costumes of the Ancients," can find a great deal of material by going over old engravings and in studying the details of early paintings.

In designing classical costumes or fancy dress in a quasi-classical manner, nothing could be better



than going direct to the Greek painted vases and Tanagra figurines in art museums. A study of the vase painting will repay you, not only on account of the knowledge which you will acquire in regard to the ancient dress, but also in teaching you to

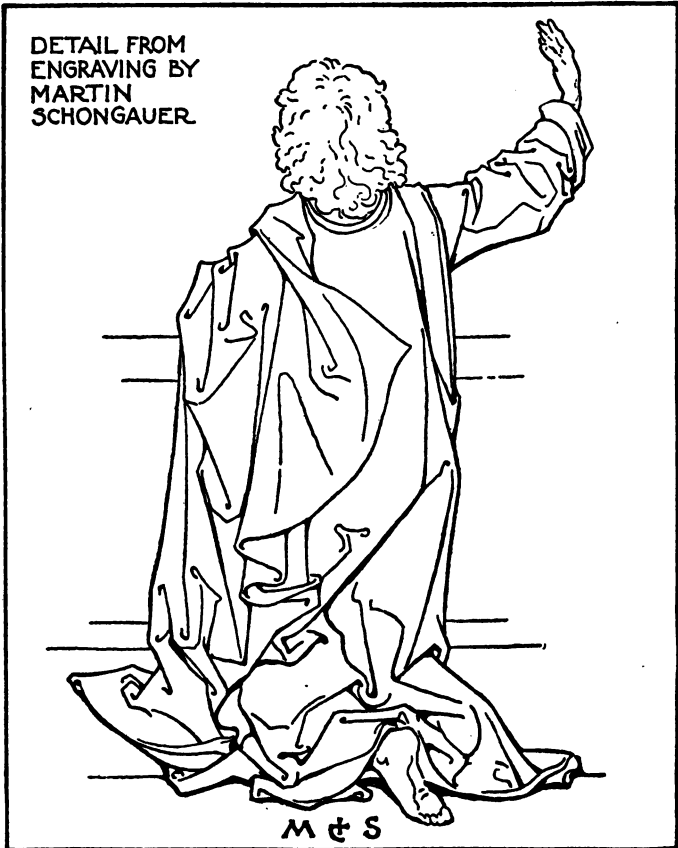
appreciate the straightforwardness of the line work in these pictures. The Tanagra figurines make clear exactly how the large mantles enveloped the figure.

In designing fancy dress of a spectacular or an extravagant order, the artist's imagination is al-



lowed full play. Besides getting his details from any period or style he pleases, he can find motives in peculiar natural forms—shells, flowers, and leaves, for example. And, as for color combinations, what more inspiring hints could be asked than those contained in the coloration of the plant and animal life of the sea, and in feathers, minerals, and crystals?

The sameness and want of variety of the figure poses in costume designers' sketches is a conventionality which cannot very well be helped, as the



figures must be drawn in such a way as best shows the merits and details of their designs.

Costume sketches are usually made in water-color—either transparent, body-color, or a com-

bination of the two. In addition there are a few little devices that can be employed in producing striking and sparkling sketches. They are as follows:

Thick white paint (Albanine is good) for lace and fluffy effects. Put it on in relief in rows of dots, or spatter it.

Gum-water, or, as it is sometimes called, water-color varnish. Paint it in to brighten parts of the design and to add richness to materials like velvet and silk.

Iridescent flitter, a powder of minute pieces of colored metallic foil. Paint gum-water where you want the play of metallic colors, and then dust the flitter over the place. Good to show brocade and the glitter of colored spangles.

Frosting, or minute particles of mica. Also to be powdered over gum-water, for silver tinsel and spangles.

Bronze paints of gold and silver to indicate jewelry. It should be put on thick, somewhat in relief. The showiness of bijouterie can be emphasized by painting the bronze on a raised or embossed foundation. The raised gilding as done by illuminators is worked out by painting the letters in a thick composition of pipe clay and plaster with gum-water. This foundation when dry is sized and covered with gold-leaf. One can imitate this effect by making the raised foundation with a thick white paint to which a

little gum-water has been added, then covering with an ordinary bronze paint. Gold or silver powders can also be made to adhere with gum-water.



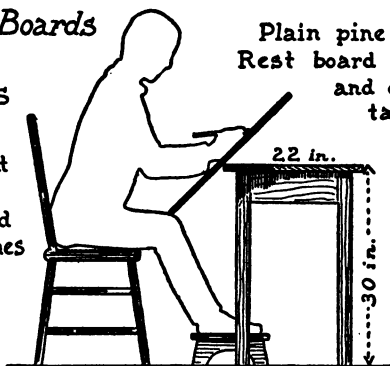
**CONCERNING MATERIALS FOR, AND
OTHER MATTERS ABOUT, DRAWING**

steady and hard to budge. The top, which can be slanted at any desired angle, makes an excellent

Drawing-Boards and Tables

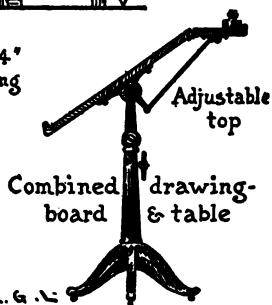
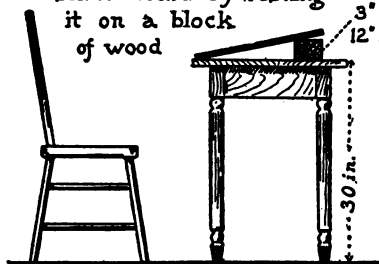
A convenient
size for
drawing-board
20 x 26 inches

Plain pine table
Rest board on knees
and edge of
table



Slant board by resting
it on a block
of wood

3" x 4"
12" long



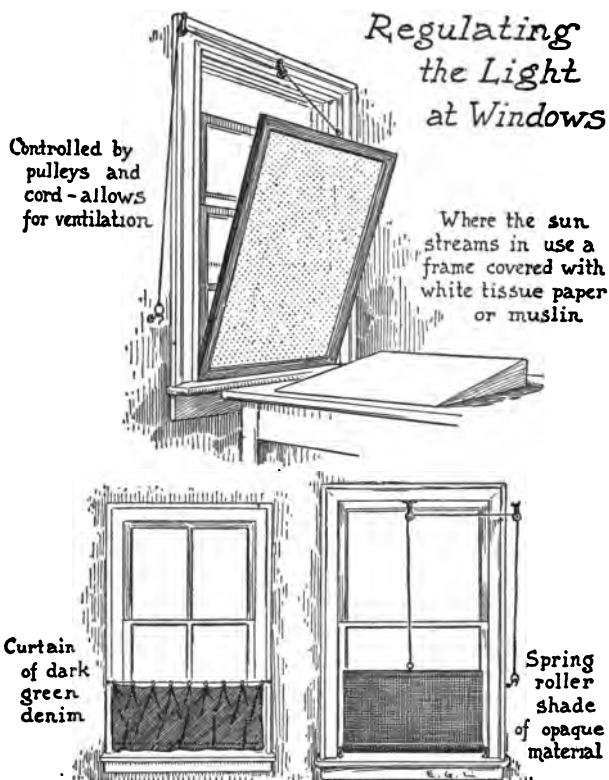
surface for those who like to work on a piece of cardboard or paper that they do not wish to fasten down with thumb-tacks. (Do not destroy the surface of the top by sticking tacks into it.) Some artists find that an ordinary unpainted kitchen table is good enough for their purposes. This they use in connection with a drawing-board which they

rest on their knees and lean against the edge of the table. The table-top is used to keep ink, pencils, and other materials. A sort of desk slant can be improvised by propping up the board with a block of wood.

Light.—Not many are so fortunate as to have a workroom with a studio skylight, but must content themselves with one lighted by an ordinary window. They can make, nevertheless, a room of this sort do by fixing the shades and curtains so that it is possible to control the way the light falls. The usual custom of furnishing a window is to put a spring-roller shade at the top, keeping it pulled part way down and so shutting out the light from above and allowing it to enter only from below. That is a fashion not well adapted for the artist's requirements; it makes a poor light for drawing. For art work, light should fall from above, and the spring-roller shade should be placed, if anywhere, at the bottom. The average window should be screened a little at the bottom, as light rays coming from below cause a tiring glare in the eyes. A screen or small curtain if stretched across the lower part of a window should be of a dark material; a deep shade of green is good and restful to the eyes. The height of this curtain depends on the position of your drawing-table. If a roller shade is used, the height can be regulated by an arrangement of cord and pulleys.

If possible, work in a room with the window exposed to the north; but if you haven't any choice about the matter and the sun shines into the room, the window must be curtained with a thin white material. A good scheme by which you can get protection from the sun's rays and at the same time allow air to enter the room—an important matter in a sunny room in summer—is to cut off the glare with a screen made by covering a wooden frame with a very thin stuff like cheese-cloth. This frame should be wide enough to fit inside of the window-jambs and just a little bit short of the height of the window. Rest the frame on the ledge, slant it inward and hold it in place by a cord that runs over pulleys to a fastening hook. The degree of the slant at which the frame should be kept depends upon the way the sunlight falls and the effect on the drawing-table. This arrangement permits air to enter over the top of the frame and at the same time gives protection from the glaring sunlight.

Studio tables and such fittings should always be so placed with reference to the direction of the light that, in falling on the artist's work, it does not throw a shadow on that part of the paper where he is drawing. In other words, light should come from the left. This is important. No one can work well if a tiny shadow coming from the pencil is constantly following the hand around as he works on a



drawing. This prescription of course concerns right-handed persons only; for the left-handed, naturally, things are exactly the other way.

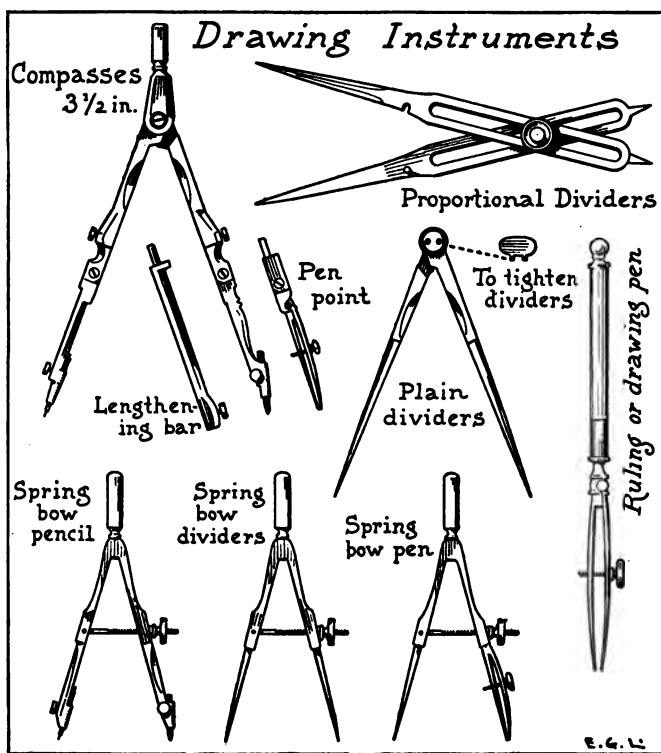
Mathematical Instruments.—How many instruments of this sort the artist needs depends altogether upon the kind of work he does. Every one

who draws will find occasional use for a good pair of compasses. One $5\frac{1}{2}$ inches long would be suitable for nearly every purpose. There should be a lengthening bar, a pencil point, and a pen point with it also. Those who do general lettering and designing should keep a set of spring-bow instruments on their drawing-tables. The bow-pen and bow-pencil, especially, are indispensable to the letterer.

Ruling or Drawing Pen.—The architect and the mechanical draftsman rule their straight ink lines with this instrument. Free-hand artists when they wish to draw a straight pen line usually make an ordinary pen do by running it along the back edge of a ruler. It would be best if they used a ruling-pen, as it makes good, sharp—neither jagged nor broken—ink lines. Do not dip this pen into the ink, but fill it by carrying the ink from the bottle to the pen with a small brush or a common writing-pen.

Triangles, or Set-Squares.—Wooden ones, either of a solid piece or of strips mortised at the corners, are not apt to keep their shape long. They are inexpensive and may do for some work; but a better investment would be to purchase those made of a transparent amber-like composition. This transparent quality enables you to see better what you are doing when marking lines. A 30–60 degree triangle and a T-square are used in isometric projection.

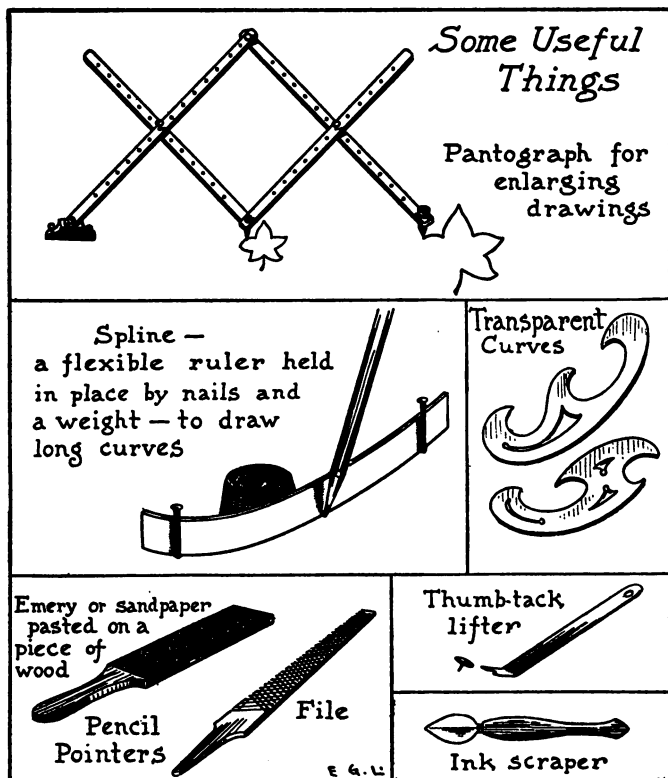
T-Square.—One of cherry wood about 24 inches long with a fixed head is adapted for the usual run of work, although a better one with transparent



edges and a shifting head would be more desirable.

Pantograph.—A handy little implement that the practical worker will sometimes find useful. As a

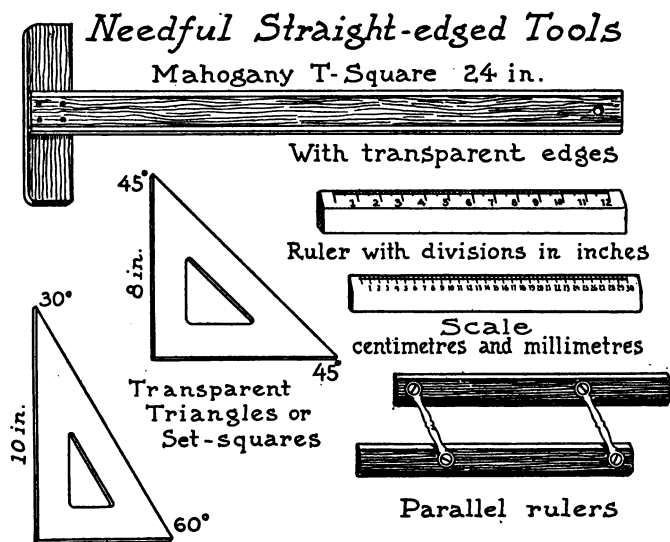
rule, an idea for a design or an illustration can be roughed out better and with more spirit in a small compass than on a larger scale. Now, here is where



the pantograph comes into use in enlarging your little experimental sketch. You can make the enlargement twice, three times, or as many times bigger as

the construction of the particular pantograph allows. A fairly accurate one can be purchased for one dollar. Do not get the cheap kind sold as a toy.

Curves.—Designers must sometimes draw curves with firm, unbroken lines. They use, for this, the

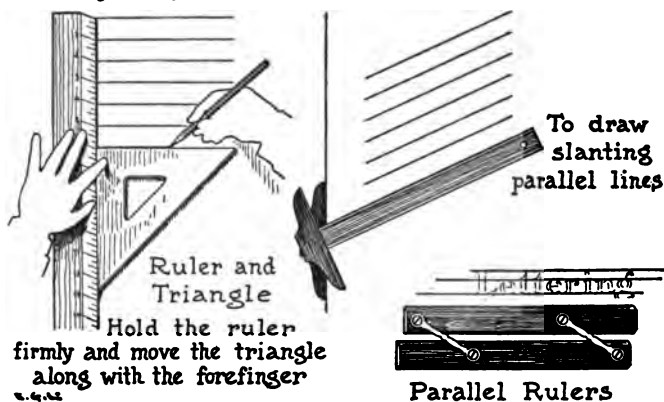


implements called draftsmen's curves. They are made of pear-wood, hard rubber, or of a transparent composition. These latter are the most helpful, as in shifting the implement about in trying to make the curve touch certain points you can see better what you are doing. Long curves of great nicety can be described with the aid of a spline. This instru-

ment is nothing more than a flexible ruler held in place by nails and a weight; or instead of a weight held to its place by the hand.

Thumbs-Tacks or Drawing-Pins.—Use those only made out of one piece of metal or the kind with a

Ways of Drawing Parallel Lines



solid brass head that does not allow the pin to break through the head and run into your thumb. To take out these tacks, use a thumb-tack lifter. It is a very good thing to have on the drawing-table, it saves not only pocket-knife blades, and scissor edges, but sometimes human finger-nails.

Erasers.—To take out pencil marks use a soft white rubber. If a rubber of this sort gets so soiled with pencil dust that it smears the paper, clean it

by a simple washing in soap and water. But be sure that it is thoroughly dry before using again. In some work, especially crayon, an eraser is wanted with a chisel-shaped or pointed end. In this case when you cut the rubber, wet the blade of the pen-knife—it then cuts very easily. An ink-eraser can be used to take out thin ink lines, or to smooth over the surface of cardboard that has been roughened in scratching off ink with the scraper. Sponge rubbers and very soft white erasers are used in cleaning off the pencillings from finished pen drawings.

Reducing-Glass.—A lens which gives a greatly diminished image of anything viewed through it. A useful article. It helps you to see your drawing from a different point of view, so to speak. It makes noticeable, in wash-drawings, spots or places that are “out of keeping.” Pen drawings beheld through it appear a little bit as they will look when reduced in the engraving. Get one of these lenses not less than two inches in diameter. It need not be mounted with a metal rim and handle.

In this connection—looking at your work from another point of view—it may be well to speak of the helpfulness of viewing your work through half-closed eyes. It is a good way of judging of its effectiveness in the matter of tone and value.

Blue Pencils.—As blue markings do not show in ordinary photography, a blue pencil can be used

to lay out any preparatory work for drawings to be reproduced by photoengraving; though the blue markings must not be too heavy. The blue pencil is the only one to use in making the first draft on scratchboard or for drawings in wax or lithographic crayons. Save the broken points of this pencil to rub up into powder to make blue transfer-paper.

Palette-Knife.—One with a blade about $3\frac{1}{2}$ inches long is a suitable size for the water-color artist. Use it to take the white pigment out of the little jars. If you keep it on your table for no other purpose than this, it is worth while, as dipping a brush into a jar of white is not a good habit. It spoils the brush and generally discolours the pigment with the invariably present black paint in the brush. The palette-knife is also good to soften any white paint that has hardened on the china slab.

Lead Pencils.—To sharpen a pencil by resting the point against the ball of the thumb while cutting the wood and lead means that various parts of your drawing-paper will be soiled by graphite thumb impressions. The way to sharpen a pencil is to cut it somewhat as one whittles a stick—in knife-blade strokes away from you. A lead pencil that cannot submit to this treatment without a breaking of the lead is not of a good enough grade to be used by the artist. In the matter of sharpening lead pencils, the requirements are: a good make of pencils, a

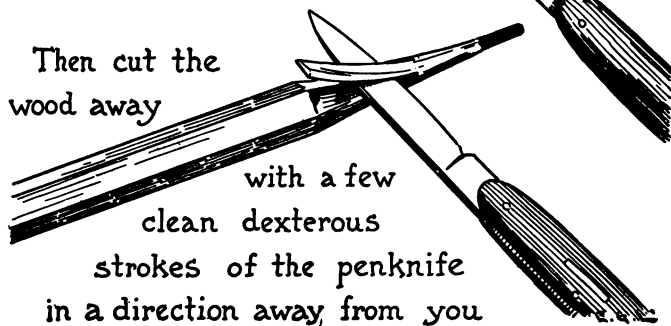
sharp-bladed knife, and emery or sandpaper lead pointers.

In drawing, every one must decide for himself by actual experiment the particular grade of softness

How to Sharpen a Pencil



Mark around pencil about $1\frac{1}{8}$ in. from the end



Then cut the
wood away

with a few
clean dexterous
strokes of the penknife
in a direction away from you

or hardness best suited to his hand. Some in making the first drawing for pen work like a hard pencil; others use rather a soft grade. Much depends, too, upon the surface of the paper. Very soft pencillings on a coarse-grained paper are easily smeared. The soft grades of pencils are generally preferred in free-hand sketching from nature. Some of them, the very softest, are made with extra thick leads and

of a grade of graphite that is free from grit, giving smooth shadings of an even texture.

Pencil drawings can be reproduced by the photo-engraving process if made on a more or less uniformly grained paper and care taken that the pencilling does not get blurred.

Drawing-Pencils.—These are of various degrees of softness and hardness.

HHHHHH, HHHH, HHH.—Very hard, used in mechanical drawing. The hardest grade can be used as a stylus to trace, with an interposing sheet of transfer-paper, a rough sketch to a fresh piece of paper.

HH, H.—For mechanical drawing and designing. In wash work, where sharp outlines are required, to mark these outlines more distinctly just before sponging off the paper.

F, HB.—Medium degrees, with leads of a firm texture. Both are much used in general designing and drafting. Good on either rough or smooth surfaces.

B, BB.—Sketching-pencils. These B-grade pencils are made with soft leads that easily smudge, especially if the paper is coarse.

BBB, BBBB, BBBBBB.—The leads in these pencils are extra thick, they can be sharpened to chisel points. Leads pointed in this form give the right touch for foliage and general landscape sketch-

ing. The very softest are best reserved for finishing strokes of deep rich blacks.

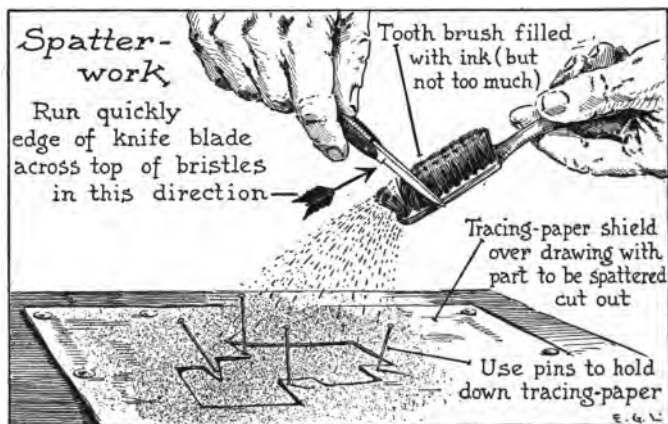
Transfer-Paper.—In work where great care is required in finishing, it is an advantageous method to first rough out the drawing on manila paper and then transfer it to the proper kind of paper or cardboard. The usual way of doing this is to place the transfer-paper between the manila paper and the other surface and go over the outlines of the first drawing with a stylus. The transfer-paper has, of course, been laid with the graphite-covered side down against the paper or cardboard, so that the hard pressure on the stylus point marks the outline of the drawing. Transfer-paper can be made by spreading the powder ground up from a pencil lead very evenly over thin paper. The dust from the emery pencil-lead pointer can be used for this purpose. Blue transfer-paper is adapted for pen work and for tracing drawings on the stipple-boards. To make this kind of transfer-paper use the points of the ever-breaking blue pencils. Typewriter's carbon paper had best not be used; it is slightly greasy and the marks from it are not easily erased.

Shields.—It is the custom in newspaper illustrating to put some sort of a decorative border or frame around half-tone portraits or views. In making these frames and the "layouts" for a group of subjects, the artist has recourse to variously shaped

forms like shields, circles, and ellipses as well as simple square or rectangular frames. When the occasion arises to draw such designs it is a good plan to cut a tracing pattern with the scissors out of a piece of stout paper. This is used in getting a sharp outline of the desired shape by running a pencil point along the edge of the pattern when it is laid against the surface of the drawing-paper. In equal-sided shapes, like shields, the two sides are cut uniformly by doubling the paper. Irregular-shaped patterns can also be made with the scissors, as curves of great nicety can be dexterously cut that way.

Spatterwork.—Decorative patterns, backgrounds, textures, and occasionally parts of the foreground and rocks in landscape pen drawings can be put in with spatterwork. This is effected by spattering a uniform tint of minute blotches of ink over the surface of the paper. The variations in the strength of the tint are produced by the amount of spattering done, and also by the sizes of the blotches. This latter point somewhat depends on the mode of doing it or the kind of implements used. The simplest way of doing spatterwork is to hold a tooth-brush charged with ink over that part of the paper to be covered, and then run a metal point across the ends of the bristles. This operation causes a little rain of ink to fall on the paper. Run the metal point across

quickly. The edge of a thin knife-blade or the point of a pair of dividers will do. With a little practice you will soon be able to get even tints. As there must always be the right amount of ink on the brush, try the operation on another piece of paper before attempting it over a drawing. Parts of the drawing



not to be covered are protected with stencils or masks cut out of heavy tracing-paper or any thin but impervious paper. Cut the stencils with the sharp point of a penknife—not the scissors. This grain-like tint can also be produced by running an old stubby bristle brush filled with ink across the meshes of some wire netting. This wire netting should be about seven inches square and the wires about three-eighths of an inch apart. The height at which

this piece of netting is held over the paper determines the size of the dots and the intensity of the tint. Be sure and see that the ink of the spatter is perfectly dry before the stencil is lifted from the paper. Spots of ink that have gone over the intended limits can be painted out with white. It is possible to produce a white spatter by splashing a white pigment over a black ground.

Pen-and-Ink Drawings over Photographs.—In the early days of newspaper illustrating most of the portraits and news pictures were made by this method. Half-tone reproductions from photographs were not then used. Instead, pen drawings were made over photographs and the photographic pictures bleached out leaving the pen drawing only—in water-proof ink—on the clear white paper.

Here is the process in detail: Given a photographic copy, say a portrait, an enlarged photograph is made on plain sensitized paper that has neither gloss, thick coating, nor lustre. The drawing is made over this in water-proof ink, the artist using his own taste and judgment in the pen work. This drawing when finished and the ink thoroughly dry is placed in a tray of bleaching fluid which destroys the photographic image only. When this has completely faded out, the drawing is removed from the bleach and washed in running water.

Further details: The bleaching fluid is composed

of corrosive sublimate (a poison) and alcohol. Use as much of the chemical as the given quantity of alcohol will dissolve. A solution of this chemical with water will also bleach, but not so quickly nor so well. If no tray is handy a pellet of absorbent cotton soaked with the solution can be swabbed over the print until it is bleached. Care must be exercised in using this chemical, especially with cut fingers—keep the fingers out of the solution. Wash the bleached print thoroughly in water. It can be mounted on heavy cardboard either before or after working on it with ink.

Amateur photographers who are accustomed to handling the chemicals of the art, and who possess a camera with a very long bellows, one that will enlarge and that takes plates not smaller than 5 by 7 inches, can make their own "silver prints," as these photographs are called. In making negatives from drawings or any other kind of flat copy it is best to get the special process or slow commercial plates, as they make in such work better negatives than the common snap-shot dry plates. Prepare the silver print paper in this way: First, salted paper is needed. This can be procured at most photographer's supply houses. But a paper can be prepared by taking a good quality of linen or a smooth drawing-paper and running it through a trayful of water in which a pinch, or so, of ordinary table salt has been dis-

solved. The whole paper must be immersed. Hang it up to dry, before going on with the next step of coating it with the sensitizing solution. This is made by taking:

Silver nitrate crystals	$\frac{1}{4}$ oz.
Citric acid	$\frac{1}{8}$ oz.
Distilled water	2 oz.

The solution made of the above ingredients is now used to cover the salted paper on one side only. It must be done in a weak artificial light. Pour a small quantity of the solution in a tray and carry it to the paper with a swab made of a pellet of absorbent cotton tied to a stick that is to serve as a handle. Go over the paper, which has been laid down on a board or table top, several times with a swabful of the solution. Be sure to get it completely covering every part. It might do to hang it up to dry and then go over it again. Wooden clips should be used to suspend the paper, and brushes with metal ferrules should not be used for the solution. Do not get any of this nitrate of silver mixture on your fingers as it will stain them brown. It is a good plan, before starting to put it on, to mark the space to be covered and leave wide margins by which the paper can be handled so that it is not necessary to touch any part where the solution is applied. Scribble lines with a pencil on the back of the salted

paper so as to see the side not to be coated with the silver solution. It is advisable that the photographic prints made from this sensitized paper, in the usual way from negatives, be rinsed slightly in plain water. And as they fade rapidly in daylight they must have the portions on which you are not working covered up. It would not be necessary to cover them up if you were working on them by artificial light, as they do not fade so fast under such a light. The prints can be fixed, so that they do not fade, in a plain hypo bath; although in this case they sometimes do not bleach so well. Ordinarily, it is perhaps best to have a commercial photographer make these enlarged silver-prints, and also have him bleach out the photographic image when the drawing is finished.

The method of making drawings over photographs in water-proof ink can also be put into practice with bromide enlargements from small negatives. The image is taken out, after the drawing is finished, with a bath made by mixing a solution of potassium bromide and water with one of copper sulphate and water. After the print has been bleached it is immersed in a plain hypo bath and then thoroughly washed in water. The bromide enlargement had best not be printed too dark. The photographer who makes the enlargement can also be called upon to do the bleaching-out process.

Blue-prints as well can be drawn over with ink

to produce drawings for the photoengraver. If not too deeply printed they need not be bleached, as faint blue does not interfere with photographing. Blue-prints can, however, be faded with weak ammonia water, or a solution of washing-soda (sodium carbonate) and lye (caustic potash). These solutions, though, are likely to weaken or make the ink run.

The most convenient and surest of the aforesaid methods in the application of photography to drawing is that of using plain silver-prints.

Retouching Photographs for Photoengraving.—As an original for reproduction by the half-tone process, nothing pleases the workman better than a good sharp photograph. But not all photographs fulfil the requirements demanded by the engraver and must be gone over by an artist in water-color to bring out details or get more contrast. For this purpose he uses either sepia or black with white and any other needed pigments to match the tints of the photographs as closely as possible.

A half-tone cut made with the finest screen from a good copy will come out, if the printing is carefully executed, as near like the original photograph as can be reasonably expected. A perfect photograph should not be retouched by the artist at all. Sometimes an indistinct photographic print will take nearly as much time in retouching as would be

required in redrawing the whole thing. The coarser the screen of the half-tone the bolder can be the artist's brush strokes. But in all cases the nearer the retouched photograph resembles a good one the better it will be as a copy for the engraver.

Retouching photographs comes under two heads; namely, (1) free-hand and (2) air-brush work. This latter method, used in retouching machinery and in "commercial art," has developed into a special profession exacting considerable skill and an adaptability for very accurate workmanship. This sort of retouching is done with a hollow needle-like implement which spreads, by the aid of compressed air, an even tint of color over the photographic surface. The strength of the tint is regulated by various mechanical attachments on the implement. The cuts in the catalogues of merchandise and machinery that were formerly made by the slow and expensive way of engraving on wood by hand have now been mostly replaced by the quicker method of making half-tones from retouched photographs.

Free-hand retouching is that branch of the art in which photographs are prepared for illustrations in newspapers and periodicals. It requires a certain cleverness in getting effects and contrasts rather than the patient skill needed in the precise and careful mechanical air-brush retouching. This

implement, though, is often used in free-hand work to put in a flat or a graduated tint as a background.

It is necessary, in both methods, that the surface of the photographs be prepared for the reception of the water-color washes. Painting over some photographs—those with a sort of “mat” surface—is almost as easy as working on the usual drawing-paper; but the shiny-coated surface of the average camera picture interferes with the free handling and flowing of washes.

There are several ways of preparing photographic surfaces for retouching. Here are two: (1) Liquid ox-gall is washed over the print and a few drops put in the water cup. Ox-gall paste can be used. (2) Take a moist rag or pellet of cotton and rub it over a piece of common sheet gelatine; then, when the rag or cotton is charged with a little of the gelatine, rub it over the photograph as if cleaning it. From time to time, during the course of putting on the pigments, work the brush over the gelatine. Instead of the above, gelatine solutions can be procured in the art shops.

As for pigments: Of most consequence is that of always employing the specially prepared process whites, as Chinese white cannot be depended upon to show invariably as white when photographed. It had best not be used. There are a number of makes of special whites for retouching put up in convenient

little jars which are to be procured in art supply shops. Of the other pigments, sepia and lamp-black are principally used. In addition, of course, there are the dark reds and browns to mix with the basic pigments of white, sepia, and black, which are employed to more nearly match the varying tones of the different kinds of photographic prints. Madder brown, especially, is good in approximating the maroon of some photographic tones.

When an air-brush tint is to be sprayed over a background, where a simple subject is in strong silhouette, a tracing-paper stencil is cut out to serve as a mask to protect that part not to be covered with the tint. And where a picture is full of intricate detail that is to be left untouched by the air-brush tint, a protecting film of rubber varnish is painted over this detail before spraying on the tint. After the air-brush tint has been put on, the protecting film can be peeled off by rubbing it with the fingertip.

Other suggestions for retouching are the following:

Use the special-process whites.

Match the tints of the photographs as exactly as possible.

Dark parts of the picture to be broken up with details in lighter tones; not too harsh a contrast, however.

Light portions need detail, but carefully put in.

Dark retouching on a lighter ground often shows rather conspicuously in the completed half-tone.

Guard against the bluish tinge of grays obtained by the mixing of white and black. The sensitive photographic plate does not reproduce the tints as they appear to our eyes. Particularly where these grays are contrasted with a brownish or reddish tone in a print, the resultant effect is altogether different from what you thought it would be. To obviate this blue cast in a gray mixture add a little bit of one of the brown pigments.

And finally: Put light against dark and dark against light—the coarser the screen, the stronger the contrast can be, and the finer the screen so much greater the care and attention needed in approximating the effect of a photograph.

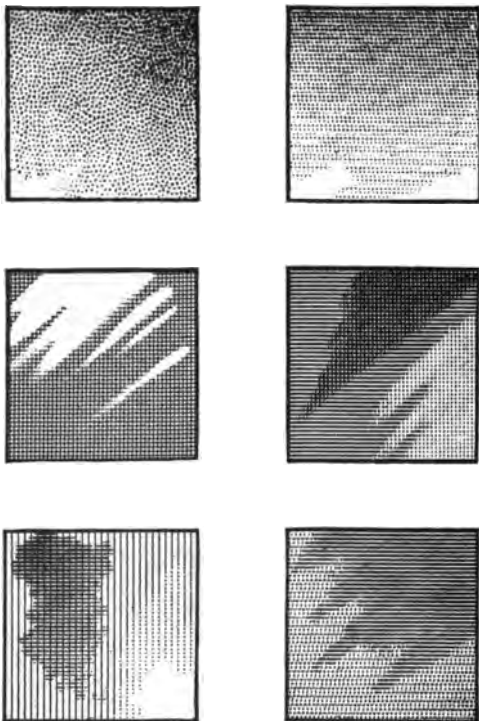
Bromide enlargements are also available for the production of originals for the half-tone engraver. In working over them it is more a matter of drawing than of retouching, as the pigments are put on very thickly and the photographic image completely covered.

Lithographic Crayons.—These crayons of a wax-like texture are employed by illustrators in various ways. Drawings made with them on roughly grained paper or on a kid-finish cardboard can be reproduced by line-engraving. Firm lines and solid blacks are put in with ink—a pen or a brush being used. This

crayon can also be used alone or in combination with the pen on silver-prints. As the lithographic crayons are only about two inches long, it is necessary to fix them in a crayon-holder. The paper-covered pencils sold by stationers have a texture somewhat like that of lithographic crayons. Both kinds, the crayons and pencils, are used in drawing on relief tinted boards.

Scraper Boards, Ross Boards, Enamel Boards.—In practical illustrating and designing, these boards are much used. They are covered with a thick clayey enamel. Some have ink lines or dots printed on them. The idea of the enamelled surface is that changes can be made by scratching out or modifying any ink markings drawn on it. Again, if a solid black ground has been painted in, white lines or spots can be scratched out. There are many kinds of these boards which, in addition to the enamel and the tints printed on them, are impressed or embossed with a pattern in relief. Some kinds have the impressed pattern, the printed tint, and the enamel surface. These impressed and tinted boards are commonly known as Ross relief boards. In England and France there is a make of lined scraper boards known under the name of Gillot. On one kind of relief board with a printed tint a drawing can be made which when engraved gives a fair imitation of a half-tone. Other varieties have stip-

pled surfaces in relief, much favored by newspaper artists for drawing portraits. The general method pursued in making these is to have an enlarged un-



ROSS-BOARD SURFACES.

mounted photograph made, the back of which is covered with blue-pencil dust so as to make a transferring surface. The photograph so prepared is laid

over the stipple scratchboard and fixed firmly with thumb-tacks. Then with a stylus or a hard pencil, the details are traced through. Care must be taken not to bear too hard on the tracing point so as not to destroy the surface of the board. After tracing, if any further drawing is necessary, it must be done with the blue pencil.

General instructions in working on these boards are:

Preliminary outlines and drawing should be made with a blue pencil.

Or, make a first drawing or outline on thin paper and then trace it with an ivory point or stylus by interposing a sheet of blue transferring-paper or by rubbing blue on the back of the thin paper.

Lithographic crayons, of which there are three standard degrees of texture, are used in making the drawings. Lead-pencil marks on these boards reproduce also; there is danger, though, of such lines smudging.

Ink lines, if any are intended, should be put in at first, as the greasy quality of the crayon hinders the free working of the pen. As these boards do not allow of much reduction, pen strokes must be fine and delicate.

To take out whites, use an ink-scraper with a broad blade for large areas and the point of a pen-knife blade for the details. The edges of these in-

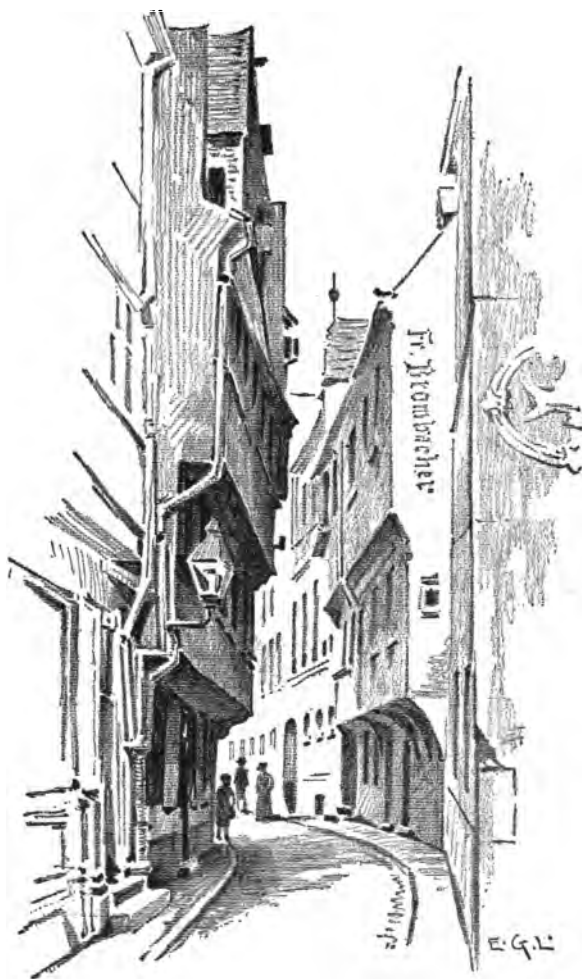
struments should be sharp. Fine lines are scratched out with an etcher's needle or the point of a pair of dividers.

Photoengraving.—Illustrations are for the most part reproduced by either line-engraving or by the half-tone process. These are the common photo-mechanical methods of making relief engravings for use in the ordinary or type printing-press. An efficient intaglio process that permits of speed in the printing is now employed in reproducing pictures and photographs. The artist, as a rule, does not have to trouble himself with the mechanical details of these processes. He has only, for line-engraving, to see to it that the ink in his drawings is intensely black and the paper white, and for half-tone to make the most effective sketch within the scope of his artistic ability and technical skill.

The engravers prefer, in marking sizes on drawings, to state it in inches and fractions of inches and not "one-third size," or "three-quarters the size" or perhaps still more puzzling, "one-third off."

The particular quality of a half-tone engraving—the rows of dots of varying strength and the network of lines in the shadows—is effected by a half-tone screen used during the procedure of photographing the original copy. This screen consists of a sheet of glass ruled with a mesh of fine lines.

The degree of coarseness and fineness of a half-



DRAWN WITH LITHOGRAPHIC CRAYON ON LINED ROSS BOARD.

tone depends on the kind of screen used. Engravings made with a 65-line screen are intended for quick printing with all the material of the cheapest quality. Screens of 120 and 133 lines are those commonly employed in making plates for general printing; whereas the fine screen of a mesh of 175 lines is that used for careful printing with good ink and on good paper. In case an artist has to supervise the making of any half-tone engravings, he should first ascertain all facts in connection with the printing so as to know what kind of a half-tone screen to order.

Pencil or pen drawings can both be engraved by half-tone. Silhouette drawings also can be engraved by this process; the solid black of the drawing instead of coming out that way—solid black—is cut up by the meshes of the screen into an even gray tone. The quality of this tone depends on the screen used.

It is customary to make drawings—wash, pen, or color—for reproduction larger than the size of the plate. A careful drawing, though, made in any of the above ways can be engraved the same size. Artists who can make pen drawings in fine, firm, yet delicate lines need make their sketches but a trifle larger than the intended cut size. But most artists would rather work larger and make drawings three, four, or even more times larger than the plate

is to be. The size of any drawing, considered relatively to the size when reduced, depends somewhat on the individual manner and technique of the draftsman. It is suggested, however, that a drawing be made at least twice the size, linearly measured.



DRAWN WITH INK AND LITHOGRAPHIC CRAYON ON LINED SCRAPER BOARD.

Ben-Day Tints.—Flat, even tints are sometimes put in engravings or drawings by a machine invented by Mr. Benjamin Day. These tints are known as Ben-Day tints. The essential part of this machine is a sheet or film of a transparent substance that has one side impressed with a pattern. This film is fixed in a frame. The impressed pattern on the film is in relief like an engraving. There is a divers

assortment of these patterns: Heavy and delicate lined or dotted tints; stipples of different kinds; grained effects; and ornamental combinations of lines. After the pattern side of the transparent film has been gone over with a printers' roller charged with ink, it is placed, relief side down, over a drawing or plate. Then a burnisher is passed, with just the right amount of pressure, back and forth, across the film over that part of the drawing or plate that is intended to be tinted. This leaves an impression of the tint on the surface. It is usual when an artist wants any particular part of a drawing tinted, to indicate where it is to go by marking that part with blue. A light tone shaded in with a blue pencil will do.

A few of the engravings* in this book show tints put in with this method.

Drawing-Papers.—In getting ready for any water-color work, the first thing an artist thinks of in the matter of a surface on which to paint, is a sheet of Whatman's paper. This is perfectly natural, for this particular name has been used to designate a standard make of drawing-paper for many years. But there are many other good papers and surfaces for drawing and painting which the artist will find at artist's supply shops. Among those that he can ask for are: Steinbach, Strathmore paper and boards,

* Pages 30, 33, 126, 201, 217.

illustration boards, German white and eggshell surface drawing-papers. It is well to remember that the very rough-grained water-color papers are not adapted for drawings that are intended for reproduction. Various kinds of tinted papers can advantageously be used in monochrome. Where the na-



DRAWN WITH INK ON LINED SCRAPER BOARD.

ture of the artist's work requires much preliminary sketching and detailing it is an economical course to get a roll of manila or detail paper. By making sketches on this kind of a surface first, it is a simple matter then to transfer the outlines to the proper cardboard or paper.

Stretching a Sheet of Paper.—Drawing-paper pasted on heavy cardboard, coming so prepared

under the name of illustration board, is the most convenient and time-saving article which the artist can select for wash-drawing. But sometimes you want a certain kind of paper or one of a particular tint. In this case you will be under the necessity of either working on plain paper or on a sheet pasted and strained on a drawing-board. To do this—straining or stretching a piece of paper on a board—go about it in this way:

(1) The board should be a trifle larger than the paper. Have a brush and some good strong paste ready.

(2) Place the paper, face up, on the board, and bend up a margin of two inches all around.

(3) Now turn over the paper and moisten the back. Use a soft sponge.

(4) Turn it over again and sponge the face of the paper. Get it uniformly moist and allow no pools of water to gather.

(5) Now see that the paper is placed on the board where you want it and quickly put paste on the margins. The reason for having bent up the margins will now be understood—it was to keep the edges as dry as possible so that there would be no moisture on these edges to weaken the paste.

(6) Next press down two opposite margins. Do this with the palms of the hands, in pressing the pasted portions firmly to the paper and pulling it

very slightly—but not too much. The other two margins are next to be pressed down in the same way.

(7) Before setting it aside to dry, go all around the edges and see that the paste is holding. Do not attempt to hurry the drying by artificial heat. It is best, at first, to keep the board and all flat and not set it up vertically, as the water will run down, cause the top to dry quicker and possibly wrinkle the paper or pull it off. When the paper has lost most of its moisture—not necessarily all—the board may be set up on an edge until the paper is completely dry.

The artist, if he wishes, can make, with some special paper that he fancies, his own illustration board by mounting it on heavy cardboard or book-binder's board. The procedure to be followed would be about the same as in mounting photographs, using a rubber-covered roller to push out any air bubbles that may form. Before pasting the paper, it must be moistened throughout, and surplus water taken off with a sponge or clean blotting-paper. To counteract the tendency to warp, paste a sheet of ordinary paper on the back. Keep under a weight until dry.

Tracing-Paper.—If the nature of your work is of a practical kind, you will no doubt use up lots of tracing-paper. The most economical way for you to do, then, is to get it by the roll. Fix this on the wall

on little brackets, much as a shade roller is hung, so that the paper can be easily unrolled as it is needed. Getting it in flat sheets is not a good plan, as the sheets get rumpled, crinkled, and torn. Get a paper of a bluish tinge or a pure white, as these can be used in outline pen-and-ink drawings by laying the paper over an elaborately worked-out pencil sketch, and then drawing only those lines in ink that will tell the picture story graphically.

Here is another use to which tracing-paper can be put: Sometimes an artist wants a sketch of a right hand. Now, if he draws his left hand on a piece of tracing-paper, all he needs to do to see what a right hand looks like is to turn the paper over.

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