

## Monumental Drawing and Lettering

By Dan B. Haslam

### A REVIEW ON PERSPECTIVE

We have received many requests for back numbers of *Design Hints* showing our articles on drawing memorials in perspective. While we would like to comply with these requests, it is impossible, as our supply of back numbers is practically exhausted. However, to satisfy this demand we have decided to reprint two of our plates and as much data on the subject as space limitations will permit. We trust this will meet with the approval of our readers.

These lessons on perspective like all the other lessons shown through the pages of *Design Hints* are intended primarily for the struggling student who is endeavoring to better himself by home study. The lessons are in no way complete, but are enough to give the student a start so that he may be able to solve the ordinary problems of everyday practice in memorial design. While drawings in some of our plates may appear complicated, every line is necessary in explaining perspective and its phenomena.

In perspective we draw objects not as they really are, but as they appear to the eye. If we were asked to draw a square block of stone in perspective, we would know before we made a line that this block has six faces, each of them square and of equal length and breadth.

We cannot draw these six faces because we would not see them no matter at what angle the block is placed. We may see three faces, two, or only one. If only one face were observed the drawing would not be in perspective, but would be a front or side elevation, top view, or ground plan. Although we may see three faces of the block at one time and though we know these faces are equal in size they will be varied in shape and in measurements when reproduced on paper in the form of a drawing. Objects near at hand appear to be larger than the same objects farther away. Thus the face of the block of stone nearest the observer will appear larger than the face farther away. This matter of appearance is what we need to understand about perspective.

To reproduce accurately on paper the appearance of an object in perspective requires certain helps and the following suggestions should enable everyone to clearly understand what has heretofore been looked upon as a dry and most complex subject.

When an object in space is being viewed rays of light are reflected from all points of its visible surface and enter the eyes of the observer. These rays

(Continued on page 18)



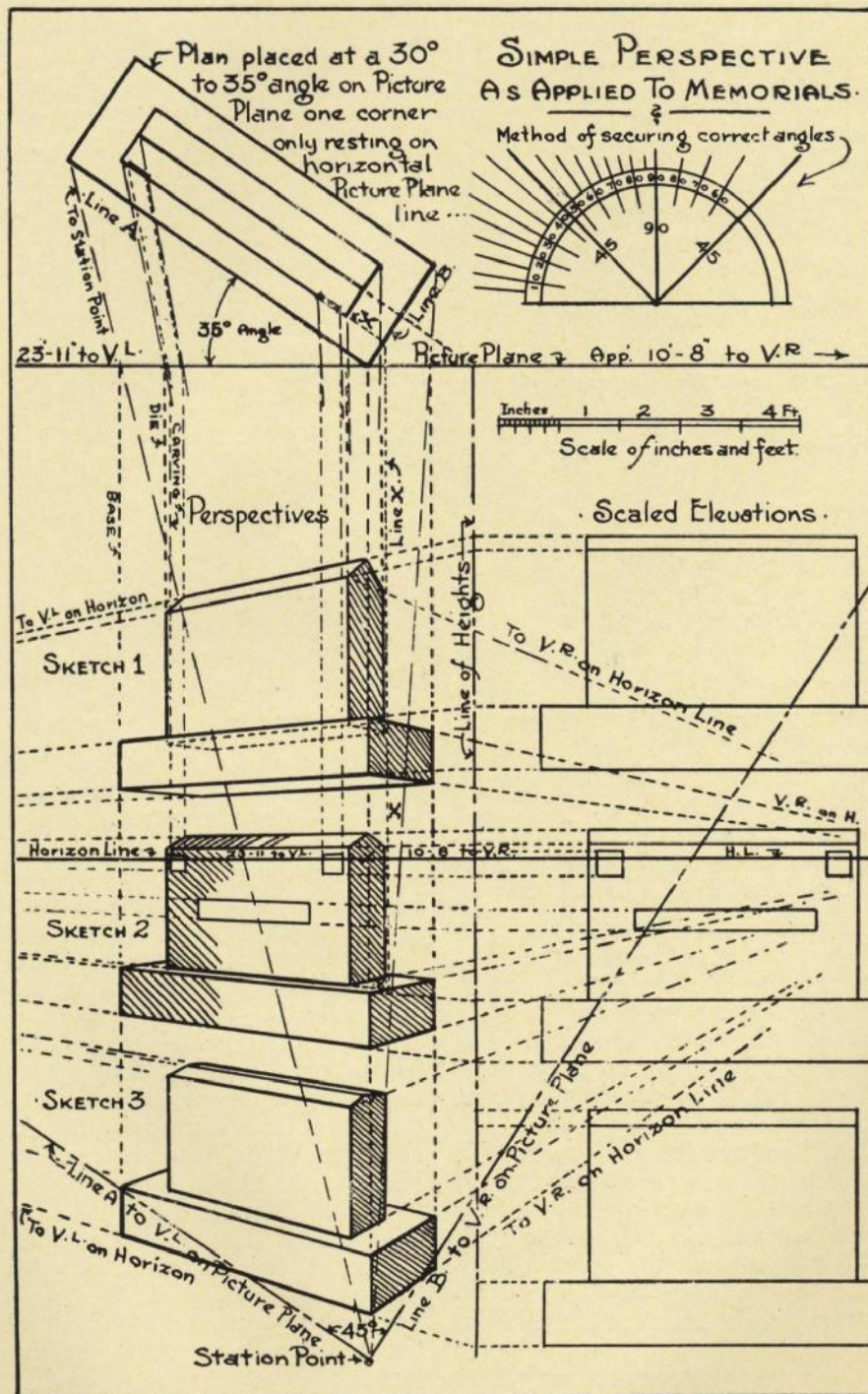


PLATE NUMBER ONE



## **MONUMENTAL DRAW- ING AND LETTERING**

(Continued from page 10)

of light are called visual rays or lines of vision. All points of the object are reflected from the surface of the object by means of these visual rays and all converge to a single point coincident with the observer's eye. The position of the observer's eye is called the station point.

The point of sight is that point to which the eye of the observer is supposed to be directed when he looks straight before him, also called the center of vision. The optical or horizon line is an apparent line of conjunction between the observer and this point of sight. The Horizon line in a picture is determined by the raising or lowering of the point of sight and the point of sight is determined by the high or low position of the observer.

If a piece of glass were placed vertically between the observer and the object in such a position that it will intersect the lines of vision, the intersection will be a projection of the object upon this glass. The plane on which the Perspective projection is made is called the Picture Plane. If one were to draw the object on a Picture Plane he would find that all points and lines of the drawing appear to exactly cover the corresponding point in the object. Each point of the object is carried through this Picture Plane by the lines of vision with the result that the drawing on

the Picture Plane is an exact reproduction of the object in space.

Parallel lines are lines which are the same distance from each other throughout their length, either straight or curved. Two or more parallel lines form a system of lines. All lines of system converge to a point called the vanishing point. This is best illustrated in the parallel lines of a railroad track. The reader has no doubt often noticed upon looking down a railroad track that the rails appear to come closer and closer together until finally they meet in a single point, technically termed the vanishing point.

Each system of lines has its own vanishing point.

A plane is a perfectly level surface which may be either horizontal, vertical, or inclined in any direction. Two or more parallel planes form a system of planes, and all planes of a system vanish in a line called the Horizon. The vanishing line of all horizontal planes is always referred to as the Horizon. All lines of a plane vanish into the Horizon of that plane, and each system of planes has its own Horizon. The "Horizon" is not imaginary, but real. It is the height of the observer's eye. Proportionate distances are reckoned as being above or below the level of your eye. If you ascend, the Horizon line goes with you, and as you look out over the landscape your Horizon is still on a level with your eyes.

A first glance at the accompanying Plate No. 1 will give one the impression of looking at a Chinese puzzle. Careful



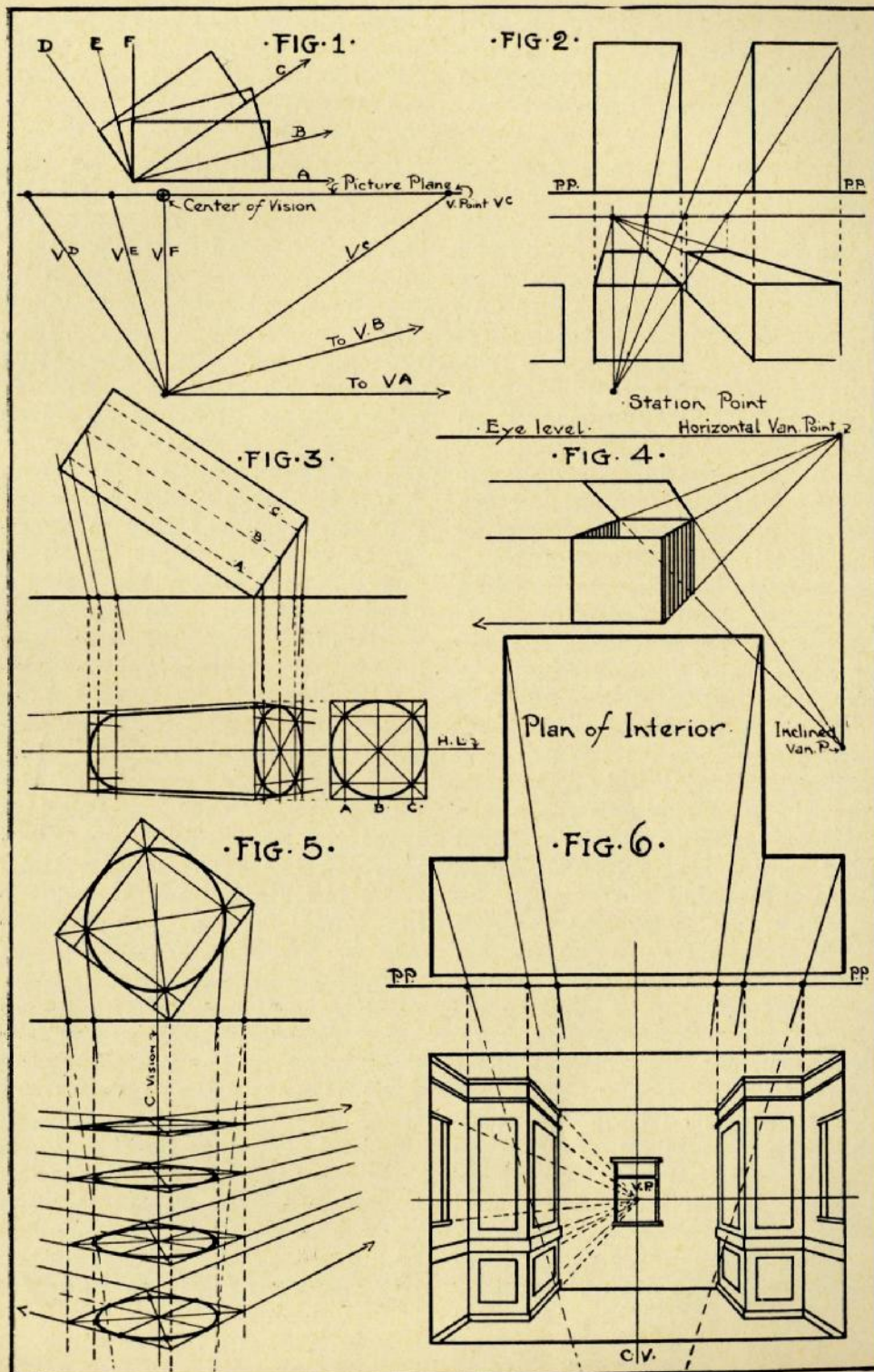


PLATE NUMBER TWO



study of the text, however, will alleviate matters to such an extent that the whole work will assume a much different appearance.

In order to make a drawing of a memorial in perspective, the student must first have in mind the shape and size of the memorial. Scaled sketches of the idea showing front and end elevations and ground plan are necessary. It is always advisable to make the plan on a separate piece of paper other than the paper the perspective drawing is to be made on. The scale to use whether 1 inch, or  $1\frac{1}{2}$  inches, or 2 inches or more to the foot is gauged according to the desired size for the finished drawing. In our example space would not permit using a larger scale than one-half inch to the foot, but this is much too small a scale for actual practice.

The vertical lines of the memorial in perspective are obtained from the scaled ground plan and the horizontal lines from the scaled elevation.

When the necessary plan is completed, draw a horizontal line straight across the drawing board at the top. This line represents the Picture Plane of the plan. Now place the plan on this line at about a 30 to 35 degree angle so that the nearest corner rests on the Picture Plane, and when correctly placed, fasten it to the board with thumb tacks.

The station point or position of observer is then obtained by drawing a vertical line from the corner of the base resting on the Picture Plane to a point 16 to 20 feet (to scale) below.

On our plan this point is 16 feet from the Picture Plane. The Perspective drawing will be made between this point and the Picture Plane.

The horizontal Horizon line may now be placed about halfway between these points (on our sketch 8-0.) The necessary heights and correct position of the memorial being established from the scaled elevation to the right of the Perspective drawing. The line of heights is obtained by drawing a line straight through the center of the plan and parallel with line A until it intersects the Picture Plane. A vertical line is dropped from this point down to any distance below the bottom of the base in the elevation drawing. Horizontal lines are made to the left from the elevation drawing by use of a T-square until they cross the established line of heights.

The vanishing points of the perspective are established from the points of intersection between the right angle lines from the station point and the horizontal line of the Picture Plane. The right angle lines from the station point are parallel to the lines of the plan on the Picture Plane. Where these lines intersect the Picture Plane vertical lines are dropped from these points to the Horizon line and necessary right and left vanishing points established. In our example in Plate 1, the right vanishing point is found at a point exactly 10-8 from the the Center of Vision and the left vanishing point 23-11 to the left. It was impossible to show these points in our plate.

The vertical lines of the me-



memorial drawing are obtained by first directing lines from the station point to the observed corners of the plan. Where these lines intersect the Picture Plane vertical lines are dropped through the Horizon and these lines represent the vertical sides of the memorial.

No matter how simple one may try to explain the phenomena of Perspective, it is doubtful whether the matter will appear simple to the student, unless he work out the problems as shown in the accompanying plates. Pictures are more easily understood than words, and if the student will draw the problems as shown on the plates he will experience but little difficulty with the subject.

Plate No. 1 shows examples of angular or two point Perspective. Sometimes, however, these rectangular objects appear with the near side parallel with the Horizon as shown in Fig. 2, Plate No. 2, and are then said to be in parallel or "One Point" Perspective.

In Angular Perspectives vanishing point is established on both sides of the center of vision and within limited distances of it. In parallel or "One Point" Perspective the lines of the plan which are parallel with the Picture Plane remain parallel in the drawing itself, the others converge to the center of vision point on the Picture Plane, and this is the vanishing point in the drawing of the object in Parallel Perspective.

Parallel Perspective is easier to draw, but does not give as good an impression of the sub-

ject as when drawn in Angular Perspective, except in the case of interior views of rooms as shown in Figure 6, Plate No. 2.

Figure 4, Plate No. 2 illustrates an example of Oblique Perspective. In this drawing the box proper is in Parallel Perspective. The end plane and the plane of the up-tilted lid converge toward a vertical vanishing line, and each plane has its own vanishing point on this line.

The author does not wish to convey the impression that professional designers take the time to lay out all the details as shown in our plates in the drawing of the average memorial design. Speed being most essential, the modern designer has devised methods that aid him in securing the same accurate results without all this preliminary work. Space will not permit our explaining these so-called "tricks of the trade" in this article but if enough of our readers are interested in the subject, we will be pleased to re-print this particular part of the series on perspective in a later issue of Design Hints.

An effort is made at all times to render helpful service to all who are really interested in the work.

### TRUTHFUL.

Perkins (at door, to installment man)—Sorry, but I can't pay you anything this week.

Installment Man—But that's what you said last week and the week before.

Perkins—Well, didn't I keep my word?