Monumental Shades and Shadow

By Jerome Aske
ARTICLE II.

The method of shadow deliniation with which we are about to deal in the present article, reduces the problem of shadow projection to its ultimate degree of simplicity. On first thought this is contrary to the text of the last chapter, but it must be remembered that the so called "conventional ray" (Ray Z-Fig. 1 Article I) is cast downward, outward and to the right. From this it should be concluded that the ray dealt with in the introductory article is not to be used in practice, and that it was demonstrated for the sole purpose of simplifying the use of the standard Ray Z, which is directed on an additional angle of 45° backward of the object casting the shadow. The backward direction of the Ray Z assumes a front plane upon which the shadow is cast.
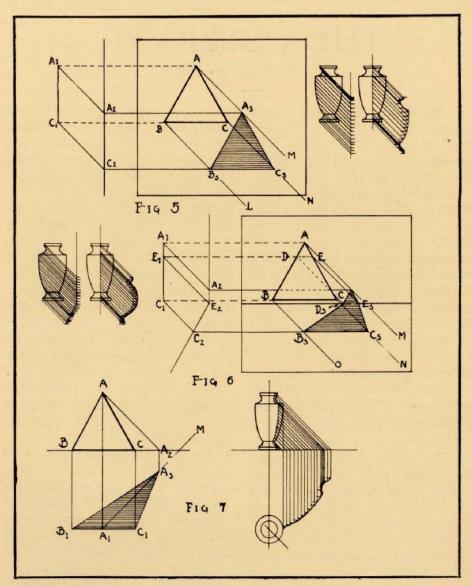
To throw the shadow of the triangle A-B-C (Fig. 5), construct the front and side elevations of the object as shown. The shadow points of the form are located forward from the plane (side elevation) upon which the shadow is thrown. To cast the shadow project the points A1-C1 downward and to the right angles of 45° to the points where they meet the plane at A2-C2 respectively. B1 is on the line with C1. Similarly draw the 45° lines AM-CN-BL. By carrying the point A2 to the right until it meets the line AM at As, and by treating C2 (and, therefore, B2) in the same way, with respect to the lines CN-BL, the three points As-Bs and Cs which determine the shadow outlines of the triangle are obtained.

From this example it becomes obvious that when the shadow is cast on an ideal front plane, the shadow is a simple oblique projection of the object casting it, for the fact that only 45° angles are involved eliminates any necessity for considering "lengthening" and "shortening" shadows. This is one of the main reasons for constructing the Ray Z on angles of the degree used.

Figure 6 shows the shadow of the same object thrown on a broken surface. In this case it is necessary to find the points D-E on the front elevation by working from E2 to E1 and then to the points just mentioned.

The method of casting the plan of a shadow thrown by an object in the path of the Ray Z is shown in Fig. 7. The elevation of the triangle A-B-C resting on the ground plane is projected to its plan B-A-C. Convential 45° lines are directed from the shadow points A-(B-C) to the ground plane. Note that the points B-C are normally on the ground plane and, therefore, cannot be and need not be projected. To continue, draw the 45° line A1-M. The shadow

FIG 5

FIG 6

FIG 7

point As is determined by drawing the line A2-As which is perpendicular with the ground plane. B1-C1 correspond to the points B-C on the ground plane and consequently determine that line of the shadow.

The Urns shown in the various figures are used here to demonstrate the drawing of shadow lines of curved objects according to the system just considered. The Urns in Figs. 1 and 2 are not treated properly according to the theory of the Ray Z since the shadow points used are drawn from the simplest corresponding outlines of the front and side elevations, the points of tangency of the sun's rays being disregarded for the reason that the methods of finding the points of tangency have not yet been treated, and, if mentioned

yond the small panel boundaries. By taking various points on the diagonal, panels of any height or width but still of the proper proportions may be obtained.

Fig. 3 illustrates a method of making an enlargement of a small photo by triangulation. Very light lines are drawn through the photo as shown by the panel in lower left hand corner. The area of this panel is enlarged as explained in Fig. 2 and necessary construction lines filled in the same as shown in the small panel. These lines should be made as lightly as is possible because they must be erased before the drawing is completed.

The beginner will experience some difficulty with work as shown in Fig. 3. So that he may not become discouraged it is advisable for him to try only the most simple subjects for awhile or until he becomes quite proficient in the art of freehand drawing. Remember at all times that it is better to draw a simple subject well than a difficult one poorly. Do not attempt to draw a mausoleum until you can draw a hickey marker and draw it well.

MONUMENTAL SHADES AND SHADOWS

casually in connection with the solution of a problem, would confuse rather than enlighten. In Fig. 7 the shadow points have been drawn from the proper line of tangency of the illuminating rays. The subject just mentioned in passing, will be treated fully in the third article of this series.

THE OBSERVER

he paid a commission of 20% on two fifths of his total volume of sales. It is to be borne in mind that with all obvious omissions and ridiculously low expense items for granted—in other words, giving the business the benefit of the doubt in the matter of costs in order to avoid staggering figures—the above profit is the result when the retail price was about two and one-half times the quarry cost. *No merchant can get rich on this procedure.*

A monument purchased for $100.00 f. o. b. cars at quarry and sold for $250.00 does not yield a profit of $150.00 as is sometimes supposed. On the above basis with apparently low expense items figured, the profit would be only $25.00. If all costs were figured on a fair basis this selling price would yield no profit at all. The proprietor would be compensated for his time and service but would have no actual profit for his risk in business. The logical selling price should be $300.00 to yield a profit in the neighborhood of ten per cent.

Too often there is a tendency to figure only in terms of quarry cost as the whole cost on any sale. The items of expense above listed are not apparent and it is a difficult thing to distribute these items in proper proportion among individual sales. Until such time as a uniform cost system is worked out and adopted by the craft the safest thing to do is to recognize the fact that such items of cost do exist and prepare for them by using a high enough multiplier on the