SOME PHASES OF DESCRIPTIVE GEOMETRY*

BY W. H. ROEVER

The purpose of this paper is to recall those phases of descriptive geometry which are involved in the construction of adequate pictures of space objects. These remarks are particularly addressed those who attempt to use pictures and thus admit a need for them. To quote from Klein, "Is it not as worthy an object of mathematics to be able to draw correctly as to be able correctly to calculate?"

The need for descriptive geometry was probably first felt by the artist and the architect. The former was interested in conveying by means of his drawings a clear notion of the spatial form of the object represented. The latter, on the other hand, made use of his process of drawing, not only to instruct the builder as to the form and size of the objects which he represented by his pictures, but, in addition, to solve by means of plane constructions the problems of space which were encountered by the mason and carpenter. Thus the art of stereotomy was developed in the Middle Ages. In separating the geometric constructions of this art from their application, Frézier, in 1738, laid the cornerstone of modern descriptive geometry. It was Gaspard Monge (1746 – 1818) however, who developed this new constructive geometry of space so as to elevate it to the dignity of a pure science to which he gave the name descriptive geometry.

At this point let us observe that the process of drawing can be performed only upon a surface, and, in particular, upon a plane surface. It thus becomes possible to execute graphically, i. e., with pencil, ruler and compasses (instruments of the geometer), the following fundamental operations of plane geometry (postulates of construction):