FIVE AXIOMS FOR POINT AND TRANSLATION IN AFFINE GEOMETRY

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1. *Introduction.* Postulate systems for geometry are so numerous that the development of a new system is of itself of little interest. Before explaining the present system, some remarks about various lines of approach to geometry may be of value in estimating its significance.

(1) The introduction of a new form of geometry upon the basis of an assumed familiarity with other geometrical studies is a well known practice. This is what is done in the usual treatment of analytical geometry, of descriptive geometry, and frequently of projective geometry. There is even a tendency these days to teach euclidean geometry along semi-intuitional lines. This procedure appeals to elementary students as being "concrete", but it makes any appreciation of the logical structure of the subject difficult.

(2) A "synthetic" axiomatic treatment of geometric figures is the classical and still the orthodox line of approach. This is the method of Euclid, of the familiar non-euclidean studies, of Hilbert's *Foundations,* and of Veblen and Young's *Projective Geometry,* not to mention others. This is however subject to the disadvantage that the employment of powerful and economical analytical methods is necessarily delayed. It has also in the past been the innocent cover for much inaccurate reasoning. While a wide acquaintance with actual synthetic theorems is essential to the neat handling of complicated relations, it is difficult to justify an avoidance of analytical tools when these would simplify the discussion. The utility of quasi-analytical notions is admitted even by the extreme euclidean purists, not only in the simpler relations but when these appear under such titles as "method of similar figures", "method of translation", "methods of rotation and reflexion", "method of