

Towards a Geometrical Way of Thinking

Clifford Singer
510 Broome Street
New York, New York 10013
CliffordhS@aol.com

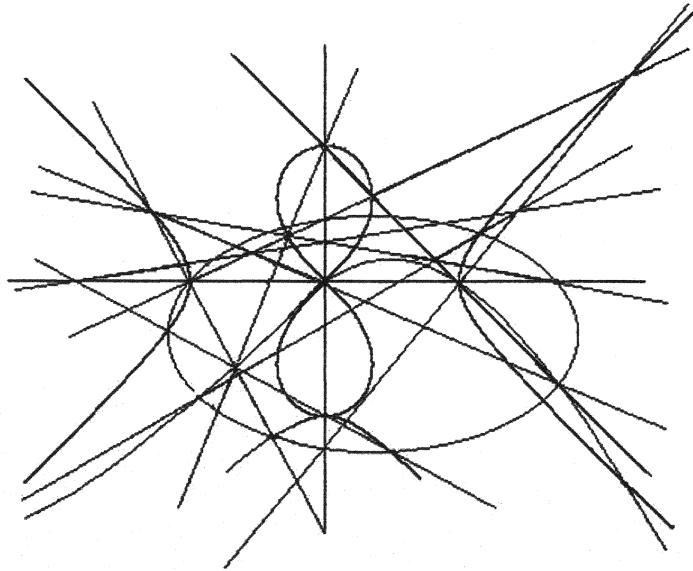
Is it that we discover and use mathematical definitions to further connect and validate geometrical understandings from an artistic perspective?

The scientist must go through a filtering of abstract descriptions to reach a concrete reality and the geometer/artist must, as is common to the mathematician's use of the branches of mathematics, present an illustration based in visual art. All disciplines of visual art enable the geometer/artist to gain a foothold through creative process into a belief that a fixed state for the geometrical diagram is artistic imagery. We find something so tangible set into art materials and thus into time representing essential structures found on a universal scale whether they be real or imaginary. Fragments of the infinite past, present, future distinguishes a system of numeration in space-time yielding an intuitive picture thus exchanged for a symbolic and geometrical construction.

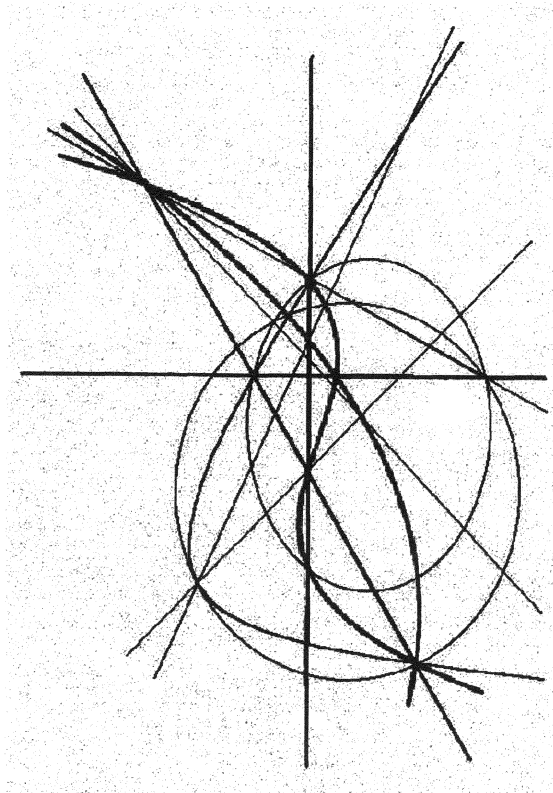
Exploration into a geometrical way of thinking of vectors, curvature and the introduction of properties, manipulation of visual enterprise as geometer/artist informs the viewer on dissection and algorithmic thinking. This lends proof for geometrical thought and visual experience. Jack Tworokov viewed his *Knight Moves* series of paintings during the 1970's as "vectors for mental exercise." Tworokov's paintings were derived from playing Chess. To work geometrically, one needs to create pictures from the mind and demonstrate by drawing this vision on paper. Sometimes one needs to draw them precisely, using mechanical tools by hand and/or with computer prosthesis. To reason about shape, space, line, form, and dimension requires good discipline of mind: where one must imagine, compute, observe, describe, and demonstrate.

According to Poincaré, although scientific theories originate from experience, they are neither verifiable nor falsifiable by means of the experience alone. For example, look at the problem of finding a mathematical law that describes a given series of observations. In this case, representative points are plotted graphically, and then a simple curve is interpolated. The curve chosen will depend both on the experience which determines the representative points and on the desired smoothness of the curve even though the smoother the curve the more that some points will miss the curve. Therefore, the interpolated curve is not a direct generalization of the experience, for it corrects the experience. In this sense, there is always a necessary difference between facts and theories, and therefore a scientific theory is not directly falsifiable by the experience.

The collections of geometrical drawings and models, and this discussion are designed to disarm, in part at least, the hostility directed against the excessive abstractness of meanings, and always direct the right for the achievement of the individual's expression.



Cliff Singer, Lemniscate III (C), 2002, Aquatint Etching, 24×30"



Cliff Singer, Bounded Polynomial I, 2002, Aquatint Etching, 30×24"