CONTENTS

MUTATION GEOMETRY

CHAPTER I

Fundamental Ideas

- 1 1 Products
- 1 2 Solution for a prototype
- 1 3 Equation of a straight line
- 1 4 Common point of two lines
- 1 5 Cartesian axes
- 1 6 Systems solution
- 1 7 Omega proposition

Chapter 2

- 2 1 The straight line
- 2 2 Equation of a line with given intercepts
- 2 3 Normal form of the equation of a line
- 2 4 Distance from a given point to a given line
- 2 5 Angle between two lines
- 2 6 Equation of the bisector of the angle between two given lines
- 2 7 Slope intercept form
- 2 8 Miscellani

Chapter 3

Circle

- 3 1 General equation
- 3 2 A pattern of thought

- 3 3 Tangent circles
- 3 4 Equation of circle thru two points with center on a given line
- 3 5 Equation of a circle thru a given point tangent to a given line and with its center on a given line
- 3 6 A generalization
- 3 7 A second generalization
- 3 8 Equation of a circle thru two points and a given line at a given angle.
- 3 9 Tangents to a given circle
- 3 10 Common points of a given line and a given circle
- 3 11 Common points of two given circles
- 3 12 Radical center
- 3 13 Linear combination of two circles
- 3 14 Circle thru two points cutting a given circle at a given angle
- 3 15 Circle passing thru a given point and cutting a given line and circle at given angles
- 3 16 Circle passing thru a given point and cutting two given circles at given angles
- 3 17 A generalization of the Apollonian problem

Chapter 4

- 4 1 Conventional view
- 4 2 Eccentricity
- 4 3 Standard forms
- 4 4 Equation of a hyperbola
- 4 5 Equation of a hyperbola center not at the origin

- 4 6 The parabola
- Frame change, shift of viewpoint 4 - 7
- Conic types from invariance 4 - 8
- Polar coordinates 4 - 9
- 4 10 Polar equation of a straight line
- 4 11 Polar equation of a circle
- 4 12 Polar equation of a conic

Chapter five

Mutation Geometry view of the conics

- 5 1 Scalar sens-tization
- 5 2 Primal State Equation
- 5 3Eccentricity
- Focal Vector 5 - 4
- Equation of the Line Thru the Foci, 5 - 5 a Central Diameter
- The Central Diameter Route to a Knowledge of the Conics 5 - 6
- 5 7The Primal State Route to a Knowledge of the Conics
- 5 8 The Parabola
- Vertex, Focus, Perfolatum 5 - 9
- Coris propertico 5-10

Chapter Six

Mutation Geometry View of College Geometry

- 6 1The Alpha Postulate in Action
- Generalization of the Apollonian 6 - 2 Problem
- Description for the Historic Diagram 6 - 3

- 6 4 A Generalization of the Simson Line Theorem
- 6 5 Brocard Generalization

Chapter Seven

Mutation Geometry View of the Field of Projective Geometry

- 7 1 Comments re-Projective Geometry
- 7 2 Equation of a Conic Thru Five Given Points
- 7 3 Construction of the Points Common to a Line and a Conic Given by Five Points When the Conic is not Drawn
- 7 4 Construction of the Tangents From an External Point to a Conic Given by Five Points When the Conic is not Drawn
- 7 5 A Conic Property
- 7 6 A Conic Given by Five Tangents, Four Tangents and the Point of Contact on one, Three Tangents and the Point of Contact on Two of Them
- 7 7 Tangents to a Conic From an External Point.