

**IMPORTANT
DISCOVERIES IN PLANE
AND SOLID GEOMETRY**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649232024

Important Discoveries in Plane and Solid Geometry by P. D. Woodlock

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

P. D. WOODLOCK

**IMPORTANT
DISCOVERIES IN PLANE
AND SOLID GEOMETRY**

IMPORTANT DISCOVERIES
IN PLANE AND SOLID
GEOMETRY



CONSISTING OF

THE RELATION OF POLYGONS TO CIRCLES
AND THE
EQUALIZING OF PERIMETERS TO CIRCUMFERENCES
AND
DRAWING CURVED LINES EQUAL TO STRAIGHT LINES
THE
TRISECTION OF AN ANGLE
AND THE
DUPLICATION OF THE CUBE

BY P. D. WOODLOCK



PRESS OF
E. W. STEPHENS PUBLISHING COMPANY
COLUMBIA, MISSOURI

COPYRIGHT 1912
By P. D. WOODLOCK.

6 C. 10. 28. 6. 6.

PREFACE.

In publishing this book the author feels confident that he has added something to geometrical science, which has not heretofore been known.

He especially invites geometricians and mathematicians to examine carefully and without bias, the several propositions and problems, and their demonstrations, contained in the book, and he has no doubt that they will find interest in every page.

Some of the problems appearing in this book have occupied the attention of geometricians in all ages since the introduction of geometry as a science, yet all attempts at their solution have been unsuccessful down to the present time. That the author of this little work has been rewarded with the discovery of the true solutions of these problems he confidently leaves to the consideration and candid judgment of geometricians throughout the world.

427433

PART I.
CONSISTING OF
PRELIMINARY DEMONSTRATIONS
LEADING TO THE
EQUALIZING OF CURVED LINES
TO STRAIGHT LINES.

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

PRELIMINARY DEMONSTRATIONS.

PROPOSITION A.

To form a series of polygons upon a square or equilateral triangle having the same center and equal perimeters, the number of their sides being to each other consecutively in the ratio of two.

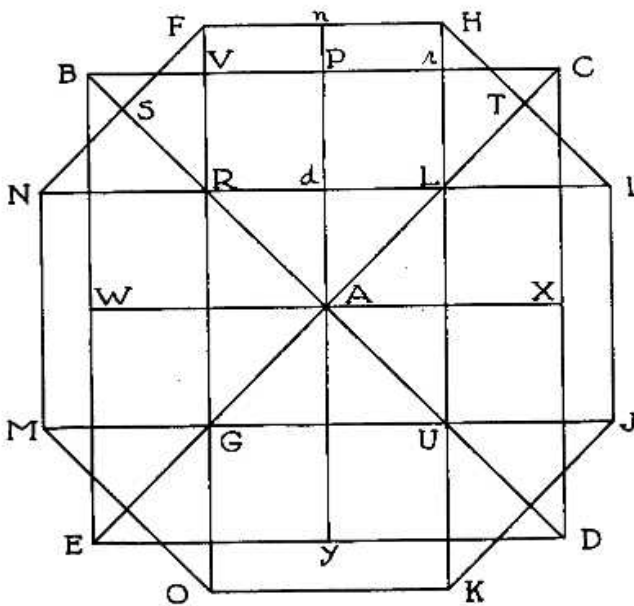


FIGURE A.

In Figure A, let BCDE be a square, and draw the diagonals BD and CE, bisecting each other at A, which is the

center of the square, and draw the line AP. Then AP is the radius of the inscribed, and AC is the radius of the circumscribed circles. Then bisect the lines AB and AC at R and L, and draw the lines RF and LH equal to RB and LC respectively, and parallel to AP, and draw the

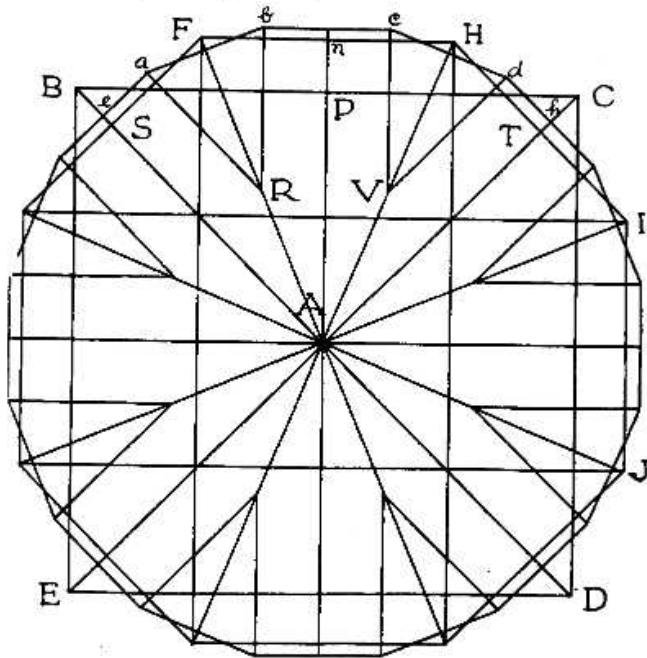


FIGURE B.

lines AW, AX and Ay, bisecting the lines BE, CD, and DE, and draw RN equal to RB, and parallel to AW, and draw LI equal to LC, and parallel to AX. And in like manner bisect the lines AE and AD at G and U, and draw the lines GM and GO, equal to GE, and draw UK and

UJ, equal to UD, and draw the lines RL, LU, UG, and GR, and draw the lines FH, HI, IJ, JK, KO, OM, MN and NF. And the figure thus formed is an octagon, whose perimeter is equal to the perimeter of the square BCDE.

Now the line Cr is perpendicular to LH, and HT is perpendicular to LC. And LH being equal to LC, therefore

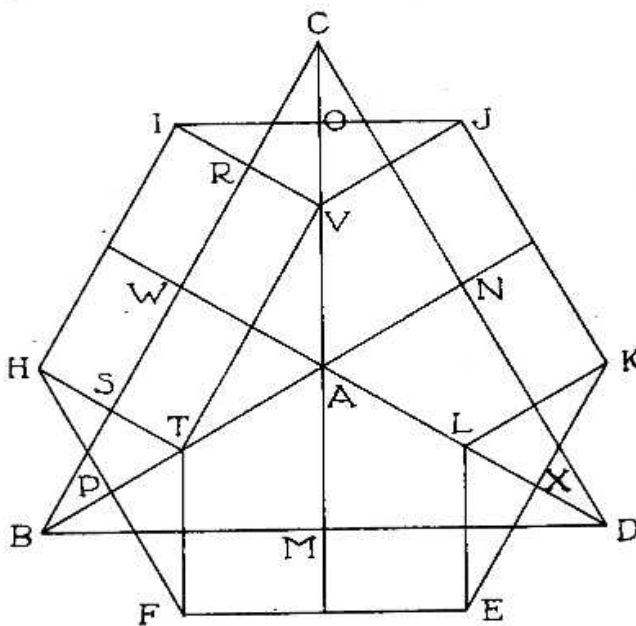


FIGURE C.

the line Cr equals HT. In like manner $FS = BV$, and $FH = Vr$. Hence the lines $SF + FH + HT = BV + Vr + rC = BC$, which is a side of the square. Now the lines $SF + FH + HT$ are equal to one-fourth of the perimeter of the octagon. And BC is one-fourth of the perimeter