ang. FDG eq. FBG; let OB cut FD in K, and draw OH perp. to BC; then ang. BAC (eq. half BOC) eq. BOH, and angs. at H, E are rt. angs.; therefore ABE eq. OBH; hence KDO eq. KBD; to each add KDB, therefore ODB eq. KBD, and KDB eq. OKD; but ODB is a rt. ang.; hence, &c.

320. ABCD the sq.; take any pt. E on the cir. between A and B; draw EFG perp. to AB meeting AB, DC in F, G; then the sqs. on EA, EB, EC, ED are tog. eq. twice the sqs. on EF, FA, EG, GC, *i. e.* eq. twice the sqs. on AE, EC, eq. twice the sq. on AC.

321 and 323 follow at once from 189.

322. The cen. is where the diags. intersect.

326. The ang. CAD is a fifth of two rt. angs.; hence the arc CD is a fifth of the whole cir.; hence, &c.

327. Let AB be the given st. line, divide AB at the pt. C, so that the rect. AB, BC may be eq. the sq. on AC; on AB construct an isos. triang. having each of its sides eq. AC.

328. Since AE eq. AD, therefore arc AE eq. arc ACD eq. two-fifths of the cir.; hence DE eq. one-fifth, eq. DC.

329. Ang. CAE eq. twice ang. CAD, eq. ABD; hence, &c.

330. Let CA prod. meet the cir. in H and DC in F; then ang. FHB eq. ang. FDB, eq. BAD; and FCH eq. BCD, &c.

331. The ang. ECD eq. EAD, eq. CAD, eq. CDB, therefore CE is par. to BG, and CD, AE are par. by 219; hence, &c.

332. The triang. ADE is eq. to ABD in all respects.

333. Bisect the arc CD in K, then DK eq. DF; also the angs. CKD, CAD are tog. eq. two rt. ang.; therefore CKD eq. twice CBD; hence the cen. of the cir. about BCD must be on the arc CD, therefore, &c.

334. In the fig. of IV. 11, let BD, CE meet in L; CE, DA in M, &c.; then the triangs. CLD, DME, &c., are isos. and eq. in all respects, therefore the lines CL, LD, DM, ME, &c., are all eq.; hence the remainders LM, &c., are eq., and therefore the fig. is equilat., and since the angs. L, M, &c., are eq. it is also equiang.

335. FCDE is a parallelogram, therefore AC eq. BE, eq. BF and CD, eq. BF and BA.

336. (1.) The pentagon is made up of the three triangs. ABC, ACD, ADE, but ADE eq. ADQ, (if AC, BD, in fig. of IV. 11, meet in Q), so that three times ADE is less than the whole pentagon by QCD.
(2.) By taking the eq. triangs. ADE, ADQ, ABC, BCD, it is seen that four times ADE exceeds the whole pentagon by BCQ.

337. Bisect each of the arcs cut off by the sides of the triangs., &c.

338. The angs. will contain 24, 60 and 96 deg. respectively. In the fig. of IV. 10, describe on AB an equilat. triang. ABX, BX cutting AD in R, then ARX shall be the tri. reqd. For BAX is 60 deg., and BAR 36 deg.; hence, &c.

340. Let AB, BC, CD be three sides of an equilat. fig. inscribed in the cir. ABCDE, then because AB eq. CD the arc AB eq the arc CD, to each add the arc AED; then the whole arc BAED eq. AEDC; hence the ang. BCD eq. ABC, &c.