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A Construction for the Brocard Points.

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The following note may be considered as an addendum to the paper by me on pp. 42-47 of this volume of the *Proceedings.* In that paper it is shown how to inscribe in a triangle ABC, a triangle DEF, such that the perpendiculars to the sides of ABC, drawn through the points D, E, F, shall be concurrent in a point P. This is done by constructing on each of the sides of ABC a triangle similar to DEF; then O the point of concurrence of the three lines joining the vertices of ABC to the vertices of these triangles is the point "inverse" to P. The question, then, naturally arises, What must be the shape of the triangle DEF in order that the point P may be one of the Brocard points, and, as a consequence, O the other one? and the answer is easily seen to be that DEF must be similar to ABC. Hence the following construction:—

On the sides BC, CA, make the triangles CEB, CAF, similar to ABC; then the point of concurrence of AE and BF is one of the Brocard points. The point E may be obtained by drawing BE parallel to AC and making BE a third proportional to AC and CB; and a similar construction may be given for the point F.

If, instead of making CEB and CAF similar to ABC (where the correspondence of vertices is indicated by the order in which the triangle is named), we make BCE and FCA similar to ABC, we obtain the second Brocard point.