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A graph G is said to be *well-covered* if every maximal independent set of vertices has the same cardinality. A plane (simple) graph in which each face is a triangle is called a (plane) *triangulation*. In the first of a sequence of three papers the authors proved that there are no 5-connected plane well-covered triangulations. Clearly, the only plane triangulation which is exactly 2-connected is the triangle K_3 . Two subsequent papers culminated in the proof that there are exactly four well-covered plane triangulations which are exactly 4-connected.

It is the aim of the present paper to complete the characterization of well-covered plane triangulations by characterizing the infinite family of those well-covered triangulations of the plane which are exactly 3-connected. (Received December 04, 2012)