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Mark E Watkins* (mewatkin@syr.edu), NY. *Vertex-transitive non-Cayley graphs of connectivity 1*. Preliminary report.

A VTNCG is a vertex-transitive non-Cayley graph. While Cayley graphs are vertex-transitive, the converse is false, and a number of papers (see, for example, C. Praeger or B. McCay) have been written searching for VTNCGs. We present a variety of conditions for an infinite graph of connectivity 1 to be a VTNCG. A typical theorem is the following: For some integer $n \geq 2$, let Γ be a graph of connectivity 1 whose lobes (i.e., maximal biconnected subgraphs) are copies of the Petersen graph (resp., the dodecahedral graph), and each vertex is incident with exactly n such copies. If n is even, then Γ is a Cayley graph; if n is odd, then Γ is a VTNCG. More elaborate examples involve lobes that are edge-transitive bipartite graphs. (Received August 28, 2020)