Let $G_k$ be the class of graphs for which every cycle of length $k$ or more has at least $k - 3$ pairwise nonadjacent chords. This makes $G_4$ the class of chordal graphs and $G_5$ the class of distance-hereditary graphs. I characterize $G_k$ for all $k$ (they are disparate through $k = 7$ and very simple beyond that). Motivated by $G_4 \cap G_5$ being the class of ptolemaic graphs, I also characterize $G_4 \cap G_5 \cap G_6$ (and beyond).