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Frustrated corner-shared triangles: the B20 structure JOHN HOPKINSON, HAE-YOUNG KEE, University of Toronto — We present a mean-field treatment of the classical Heisenberg model on the B20 lattice which is composed of two intertwined sublattices of corner-shared triangles. When one sublattice {(x,x,x),(1/2+x,1/2-x,-x),cyclic perm.} is magnetic we find a non-trivially degenerate ground state over a modified sphere. Addition of next nearest neighbor terms lifts this degeneracy leading to a host of long period magnetic structures–analogues of those shown by helimagnets–along the qqq or qq0 directions. The implications of these results for neutron scattering experiments will be discussed in light of recent surprising experiments under pressure on the itinerant MnSi, and renewed interest in the "Kondo insulator" FeSi and its doped semiconducting helimagnetic partner $Co_xFe_{(1-x)}Si$.

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