The dimethyl methyl phosphonate molecule (CH$_3$O)$_2$P(=O)-CH$_3$ has five large-amplitude motions, consisting of rather traditional three-fold-barrier internal rotations for each of the three methyl tops, together with less traditional skeletal-flexing internal rotations about each of the two P-O bonds. Experimental evidence (previous talk) indicates that all three methyl tops are inequivalent, with the corresponding splittings in a $(J + 1)_{0,0,1} - J_{0,0}$ pattern of the order of 20 MHz, 2 MHz and 0.2 MHz, respectively. A group theoretical treatment which neglects the smallest torsional tunneling motion leads to a permutation-inversion molecular symmetry group $G_{18}$, which is a subgroup of the group $G_{56}$ used in our earlier study of the methanol dimer. This $G_{18}$ group is chiral, in the sense that two-fold and four-fold separable degeneracies occur, i.e., degeneracies occur which are not intrinsic to the character table of the group, but result instead from an application of time reversal. Results from this $G_{18}$ group nicely explain the qualitative features of the $a$-type spectral patterns, and work is in progress to apply the results also to $b$-type and $c$-type patterns. When rotation of the third methyl top is considered, the appropriate group is $G_{54}$. Work on splitting patterns from this group is in progress.