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Let k be a field of characteristic zero, and let A be an Artin-Schelter regular k -algebra that is graded by a finite group G . We call G a dual reflection group for A if the identity component A_e of A is also AS regular. We consider necessary conditions on (G, A) for G to be a dual reflection group for A , and we construct some dual reflection groups. We show that the covariant ring, $A^{cov} = A/I$ for $I = ((A_e)_{\geq 1})$, is Frobenius. The Hopf algebra $H = k^G$ associated to a dual reflection group can be regarded as a generalization of a reflection group, since under the action of H on A the invariant subring $A^H = A_e$ is AS regular, providing a generalization of the Shephard-Todd-Chevalley Theorem, where $A = k[x_1, \dots, x_n]$, G is a reflection group, A^G is a polynomial ring, and $k[x_1, \dots, x_n]/I$, for $I = (A^G_{\geq 1})$, is a complete intersection. (Received August 09, 2015)