show how $\omega_*: \pi_1(G) \to \pi_1(X)$ completely determines the lifting problem for coverings of X and how $\hat{\omega}^*: H^2(X) \to H^2(G \times X)$ completely determines the principal torus bundle lifting problem for compact Lie groups. We shall show how $\hat{\omega}^*$ and i^* on singular cohomology determine liftings up to homotopy for n-connective coverings and stages of Postnikov systems respectively.

Finally we shall use theorem 1 to study the "equivariantization" problem. That is, given a map $f: Y \to X$ and an action of G on X, is it possible to find a homotopy equivalent map $f': Y' \to X$ which can be made equivariant? We shall study actions in which only equivariant maps must be homotopy equivalent to product space projections. We shall show that a cononical action of G on X_G, which extends a given action of G on X, has the property that every map into X_G is "equivariantizable".

We shall mention here the result for the principal torus bundle lifting problem alluded to in the penultimate paragraph above. First, recall that a principal torus bundle $T \to E \to X$ is classified by a characteristic class $k \in H^2(X;Z^n)$ where Z^n is the direct sum of Z n-times where n is the dimension of the torus T. We shall assume that G is a connected compact Lie group with action $\hat{\omega}: G \times X \to X$.