Understanding how tori embed in 3-manifolds has played a crucial role in addressing the classification problem for 3-manifolds. For example, the proof of Thurston’s Geometrization Conjecture establishes that every irreducible, orientable 3-manifold has a canonical collection of embedded tori that separate the manifold into geometrizable pieces, these pieces being collectively called the characteristic submanifold. In this talk, we will discuss how the topology of a “generic” orientable 3-manifold is reflected by the topology of its characteristic submanifold. In particular, if a 3-manifold is formed via complicated gluings of its characteristic submanifold along the gluing tori, then every low index (incompressible or strongly irreducible) surface in the 3-manifold comes from such a surface in the characteristic submanifold. (Received September 22, 2009)