The use of elastic plate theory to model the emplacement of laccoliths and large mafic sills has been widely debated. These intrusions typically attain a horizontal width that is large relative to the emplacement depth. If large scale plasticity of the host rock can be neglected, then it is valid to approximate its deformation based on analysis of a thin elastic plate. However, elastic plate models invariably fail to capture the flat-topped, steep sided geometry typical of laccoliths and the nearly uniform thickness typical of large mafic sills. One approach that has been advocated is to invoke large scale plasticity as the mechanism determining the leading order geometry of these intrusions. In contrast, we argue that the inadequacy of the previous elastic plate models is not due to their failure to consider rock plasticity. Rather, past modelling efforts have not fully recognized the coupling between the flow of the magma and the deformation of the host rock, and in particular the driving force provided by the weight of the magma has been neglected. With these considerations, the new model's geometric predictions, as well as its predictions of thickness to length relationships, are consistent with field data collected from many locations.