Let $X$ be a compact hyperbolic surface with either geodesic or horocyclic boundary. The homotopy class (rel the boundary) of a non-trivial arc from the boundary to itself can be realized by an orthogeodesic - a geodesic segment perpendicular to the boundary at its initial and terminal points. This talk is about a special subclass of orthogeodesics called primitive orthogeodesics. In ongoing work with Hugo Parlier and Ser Peow Tan we show that the primitive orthogeodesics arise naturally in the study of maximal immersed pairs of pants in $X$ and are intimately connected to regions of $X$ in the complement of the natural collars. These considerations lead to continuous families of new identities - equations that remain constant on the space of hyperbolic structures.