Skew left braces were introduced by Guarnieri and Vendramin in 2016 to study non-involutive, non-degenerate set-theoretic solutions to the Yang-Baxter equation. Let $B = (B, \cdot, \circ)$ be a skew left brace. Motivated by the Greither-Pareigis theory of Hopf-Galois structures on separable field extensions, we introduce the notion of an opposite skew left brace $B' = (B, \cdot, \circ')$. Opposite braces allow us to directly connect Bachiller’s construction of left ideals with the Childs construction of circle-stable subgroups of skew left braces, and hence with certain subfields of a Hopf-Galois extension. We also examine the relationship between $B$ and $B'$ with regards to their corresponding solutions to the YBE. (Received January 22, 2019)