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In this talk we will present the geometric form for the Extended Patience Sorting Algorithm which is, in a way, a natural dual of the well-known RSK Algorithm for Young Tableaux. We will also consider the relationship between crossings of the Patience Sorting shadowlines of a permutation π and inversions in the rows of the pair of Patience Sorting piles corresponding to π via the Extended Patience Sorting Algorithm. If time permits, we will also briefly consider the generalizations of the Extended Patience Sorting Algorithm to words and lexicographic arrays. (Received August 04, 2005)