Patterns that employ sequences of distinct permutations of dancers are found in dance forms such as English country dance and contra dance, dating at least to the 1600s in England. Contemporaneously in England, the art of church bell change ringing used very similar permutation sequences. More recently, mathematicians and theoretical astrophysicists have discovered that similar patterns are stable orbits for theoretical heavenly bodies under the influence of gravity. This talk explores the connections between these art forms and recent mathematical work as well as two dances choreographed by the author that also make use of these patterns. (Received September 17, 2013)