Shell eggs were packaged in either expanded polystyrene (EPS) foam or molded paper pulp (MPP) one dozen cartons, then were bulk packaged in either polypropylene crates or corrugated boxes. The packages were then subjected to a well-defined computer-simulated vibration test on an electrohydraulic test machine. The percentage and the location on the egg (side, top, bottom) of breakage was determined in the secondary (corrugated box or polypropylene crate) and primary (EPS or MPP carton) package after 15, 75, and 180 min. For each of three trials, 60 dozen Grade A large eggs were randomly assigned to each primary package and cross-stacked in a secondary container that contained three cartons in a row and a total of five layers. When cartons were packed in 15-dozen corrugated boxes, no significant difference was found in total eggshell damage rates between the MPP carton and the EPS carton. However, when eggs were packed in 15-dozen plastic crates, the MPP cartons caused significantly less eggshell damage than the EPS cartons. The EPS cartons packed in corrugated boxes had the lowest breakage (4.63%), whereas the EPS foam cartons packed in plastic crates had the highest breakage (12.59%). When the effect of secondary packaging and vibration time were not considered, no significant difference was found between MPP and EPS cartons. In addition, when the effect of primary packaging was not taken into account, the corrugated boxes had significantly lower breakage rates than the plastic crates. Nearly 55% of the breakage occurred in the bottom section of the eggshell as compared to the side and top. When the test periods were compared, the EPS cartons packed in plastic crates had the highest breakage (16.28%) at 180 min.