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A circle packing is a configuration of circles with a prescribed pattern of tangencies. This “prescribed pattern” is a purely combinatorial object usually encoded in a graph or abstract triangulation. Beardon and Stephenson showed that for any reasonable triangulation of a surface  $S$ , there is a unique conformal structure on  $S$  that supports a packing with the given pattern of tangencies. We explore how the conformal structure varies with the triangulation. In particular, we discuss the effect of combinatorial earthquakes and welding deformations. Using these operations, any packable Riemann surface of type  $(g, n)$  can be deformed so as to approximate any other given surface. (Received August 01, 2000)