The Effect of Vibration on the Deformation of Complex Fluids

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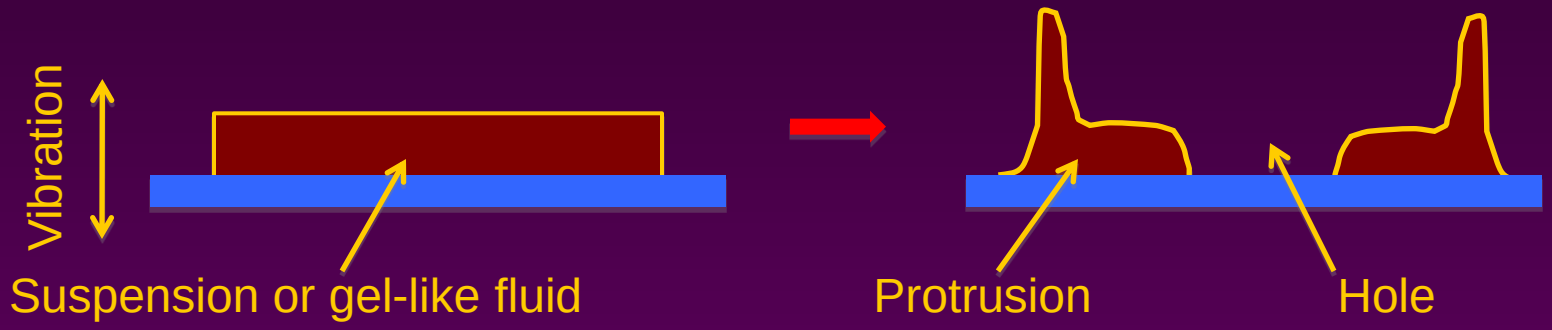
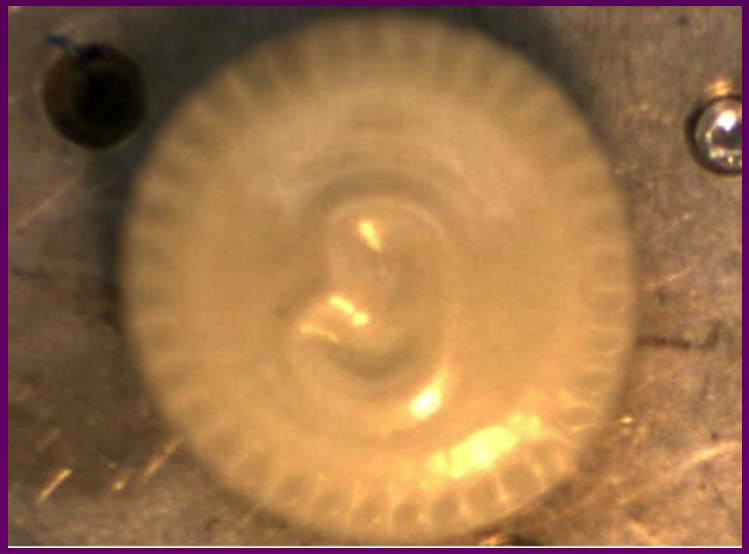
***Hypothesis**:* Rapid vibration of fluids with distributed density variation causes particle-scale velocity fluctuations that cause the material to change shape, or even form holes.





Vibration of complex fluids induces stresses that can cause protrusions, or in this case a “crown” with a hole at the center. This phenomenon may be directly relevant to the integrity of well-bore casings in oil production. The sample shown is a suspension of glass beads in water.