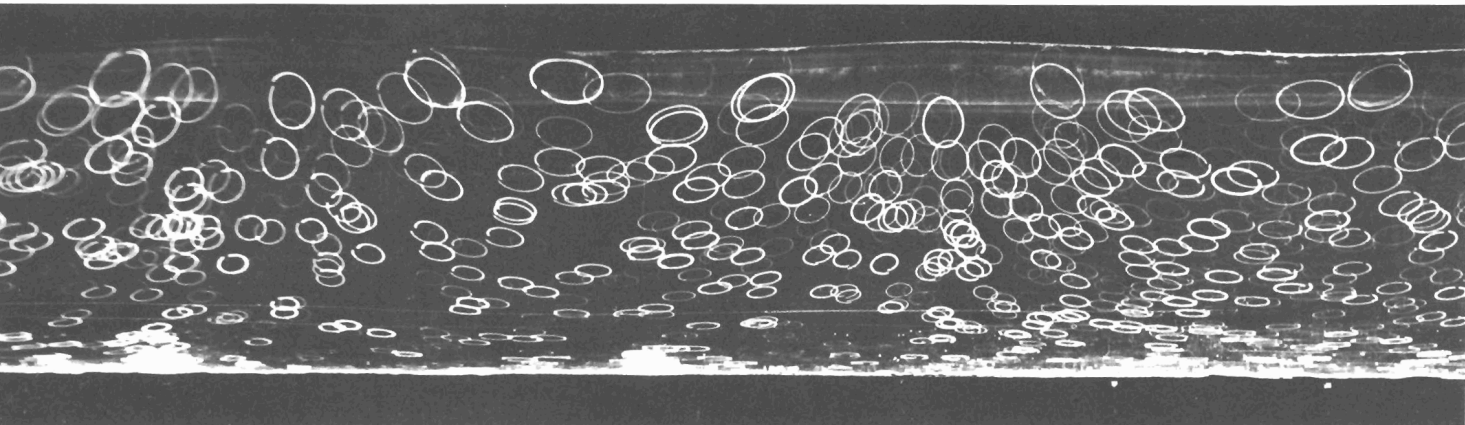
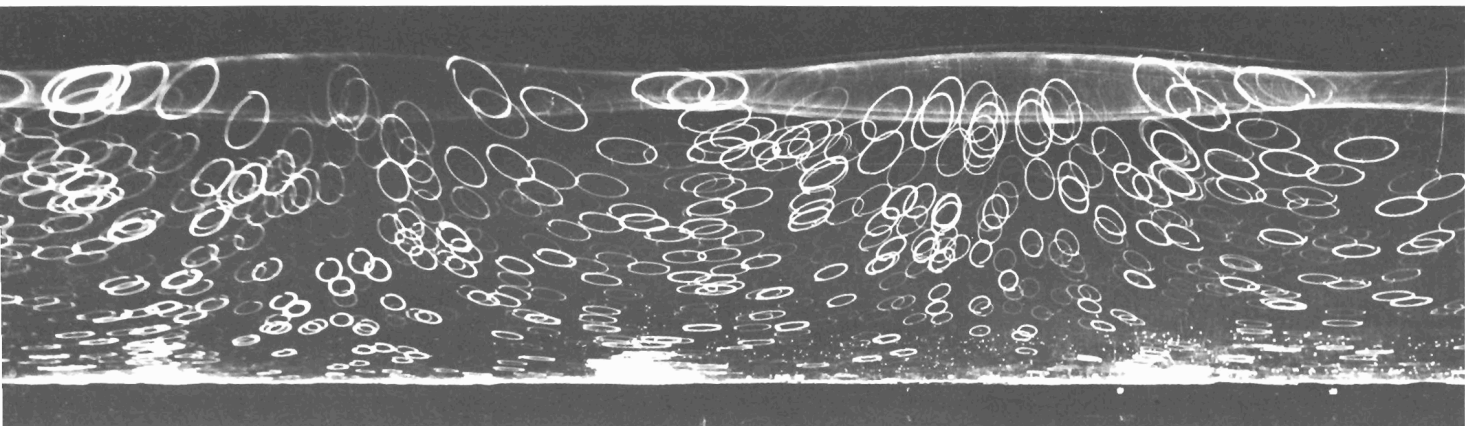


No reflection: pure progressive waves



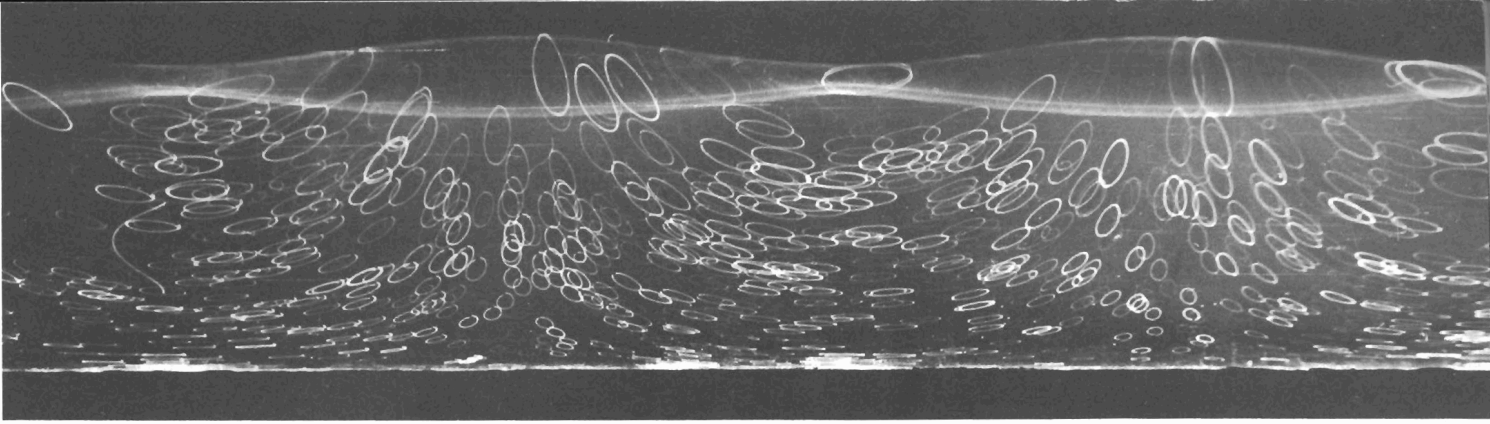
24% reflection



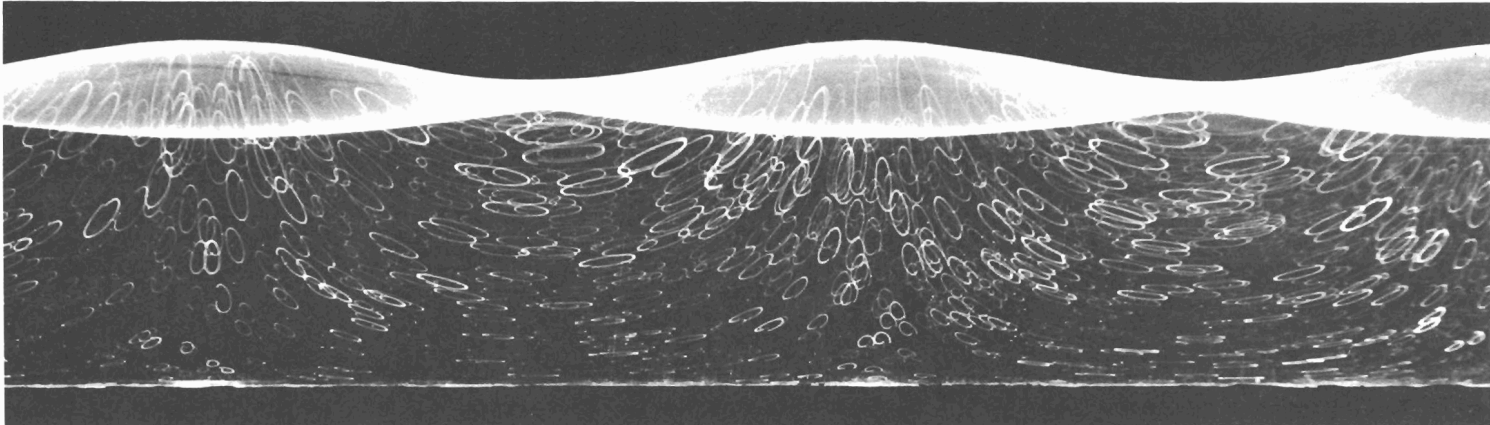
38% reflection

191. Particle trajectories in plane periodic water waves. Two wave trains of the same frequency traveling in opposite directions are produced by a progressive wave coming from the left that is reflected by a partially absorbent barrier. The top photograph shows the pure progressive wave with no reflection. Its amplitude is four per cent of the wavelength, and the water depth is 22 per cent. White particles suspended in the water are photographed during one period. Their trajectories are practically ellipses traversed clockwise, circular at the free surface and flat-

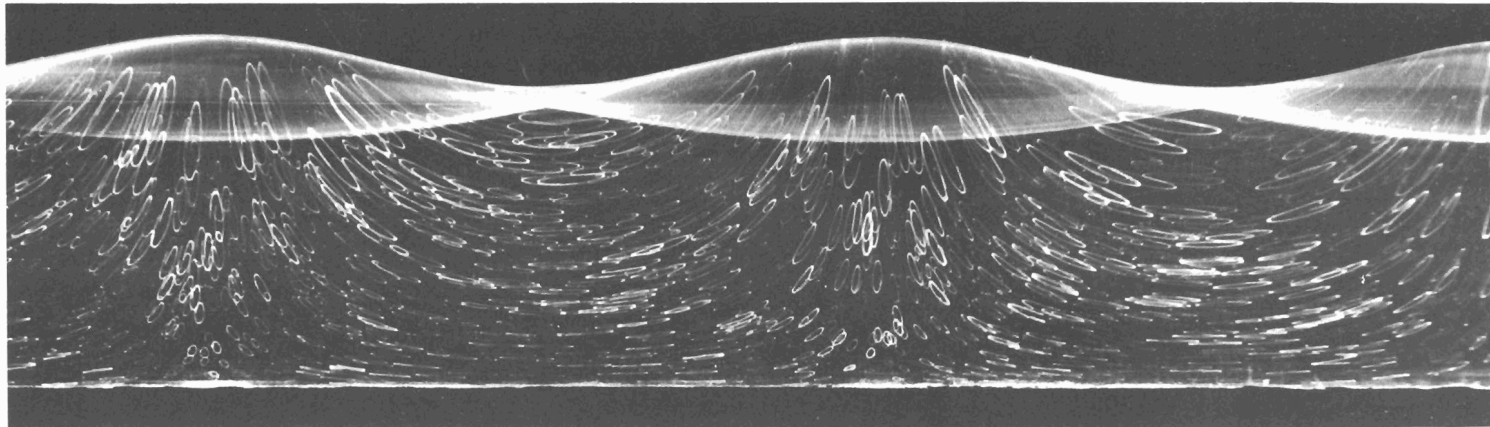
tened toward the bottom. Some open loops indicate a slow drift to the right near the surface and left near the bottom. As the reflection is increased, the orbits become increasingly flattened and inclined. Complete reflection gives a pure standing wave in the last photograph, where the trajectories are streamlines. There the upper and lower envelopes of the water surface show that the vertical motion does not vanish at the nodes. *Wallet & Ruellan 1950, courtesy of M. C. Vasseur*



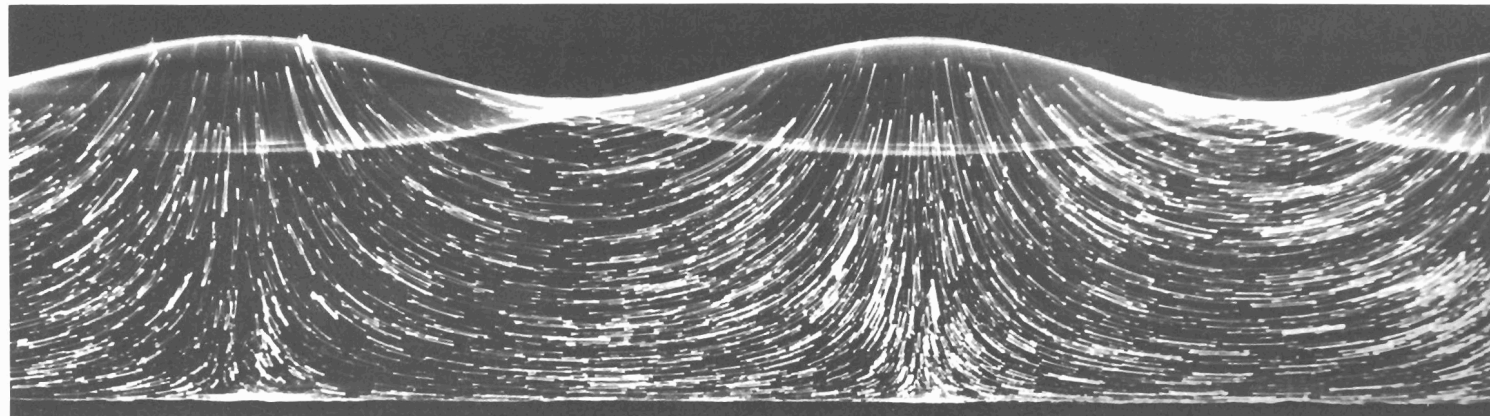
53% reflection



71% reflection



85% reflection



100% reflection: pure standing waves