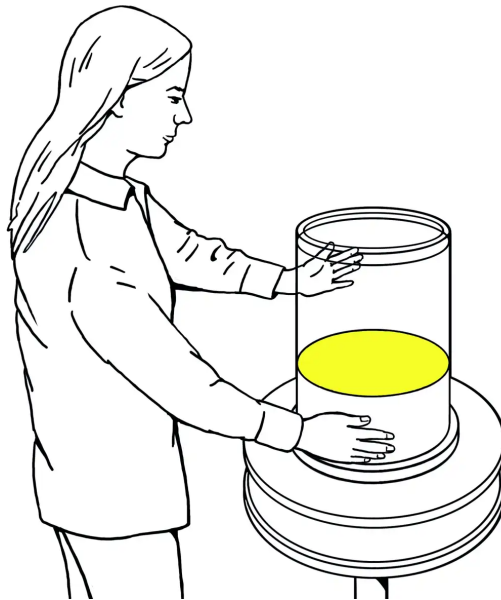


Water paraboloid

What happens to the surface of the liquid, when you spin the tank?



Spin the tank.

Watch what happens to the surface of the liquid.

Instead of being flat, the surface is curved. The faster you spin the tank, the deeper the curve.

Gravity forces the surface of the liquid to be horizontal. If you rotate the tank, the centrifugal force causes the liquid to move towards the outside of the tank. The result of both forces combined is the specific curved surface you observe. The funnel-shaped surface of the liquid is a paraboloid.

Astronomers use liquid parabolic mirrors made of mercury, because they are perfectly smooth and thus give brilliant pictures from outer space. Car headlights and torches also contain paraboloidal reflectors to focus the light into a narrow, bright beam.



Fig. 1: Liquid-mirror telescope at NASA Orbital Debris Laboratory.