

Title	The radial spread of a liquid jet over a horizontal plane
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Summary paragraph	On impingement of a liquid jet on a horizontal plate, the liquid film spreads radially until a point where the liquid film thickness changes abruptly and forms a hydraulic jump. In the supercritical region or upstream of the hydraulic jump, the liquid film thickness remains several order smaller compared to the jet diameter. In this report, Watson accounted for the effect of viscosity in the thin liquid film and calculated the momentum. Further, at the location of hydraulic jump, he balanced the momentum with the hydrostatic forces and compared it with the experimental data. The experimental data and theoretical prediction show good agreement for large hydraulic jump radius. However, it shows poor agreement when the jump radius is small. This was the first study to incorporate the effect of viscosity in the thin film.
Novel/notable aspects	Boundary layer flow, effect of viscosity
Flow key words	Liquid jets, hydraulic jump, laminar boundary layer
Cleaning type key words or Research topic	
Field/background	Fluid mechanics
Theory/method/analysis key words	Boundary layer flow, thin films, viscosity, laminar flow, turbulent film flow, force balance