

Magnitude of the Pulfrich Stereophenomenon as a Function of Target Thickness*

ALFRED LIT†

Vision Research Laboratories, The University of Michigan, Ann Arbor, Michigan

(Received May 11, 1959)

When filters of unequal optical density are placed in front of the two eyes, a target which is actually oscillating in a frontoparallel plane appears nearer than it really is for one direction of stroke and farther than it really is for the return stroke (Pulfrich stereophenomenon). Measurements of the near and far displacements of an oscillating black vertical rod are obtained as functions of (a) target thickness, (b) target velocity, and (c) condition of unequal binocular retinal illuminance.

The experimental data show that variation in target thickness has no effect on the magnitude of the apparent near and far displacements. Variations in target velocity and in condition of unequal binocular retinal illuminance produce characteristic effects which are shown to be in good quantitative agreement with geometrical predictions based on the theory of the Pulfrich stereophenomenon. Discrepancies in the magnitude of the displacements at low target velocities are noted and discussed.