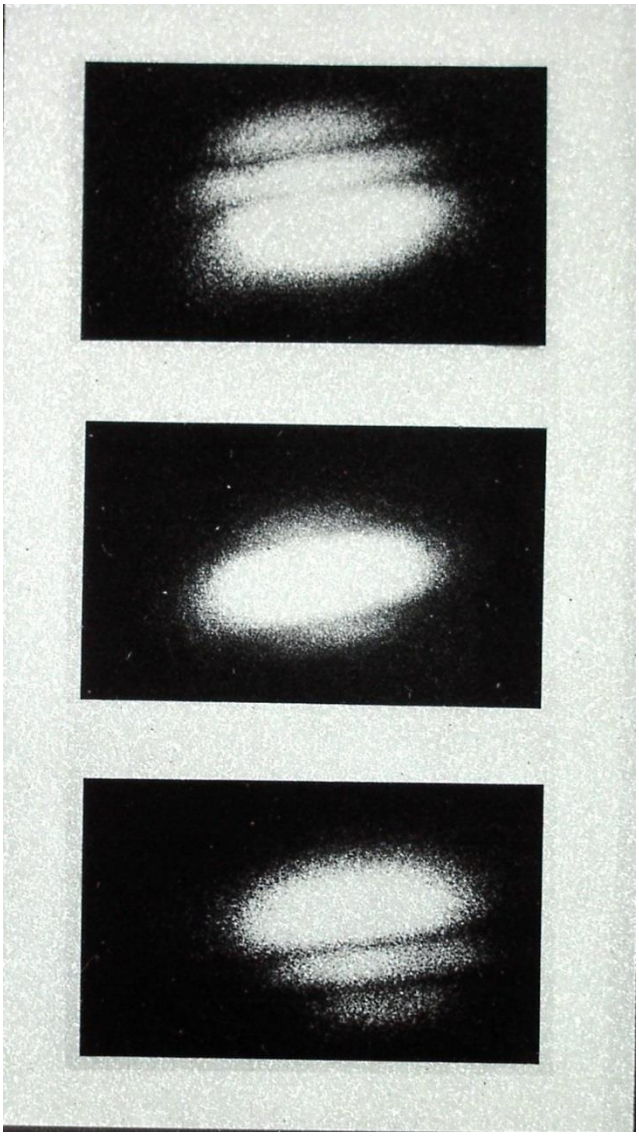
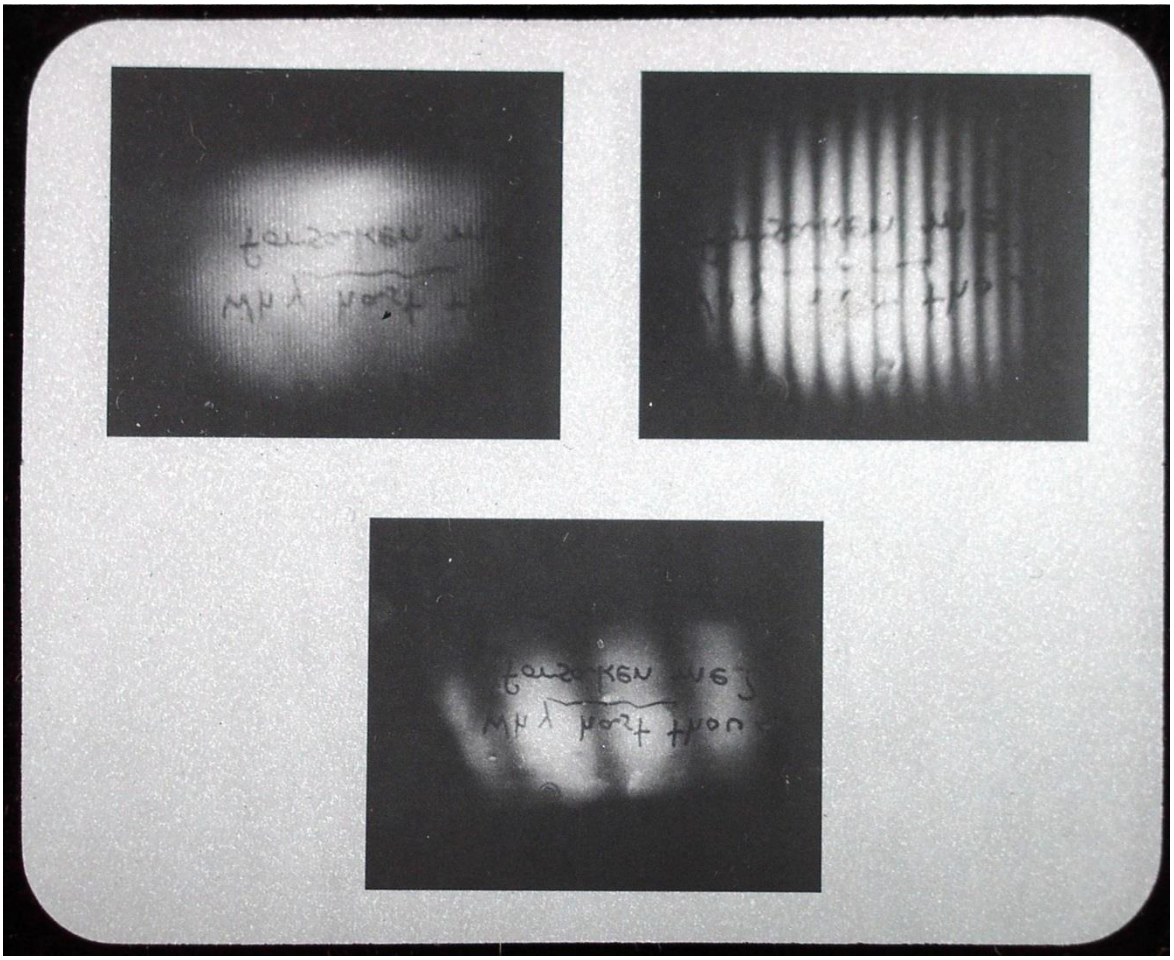
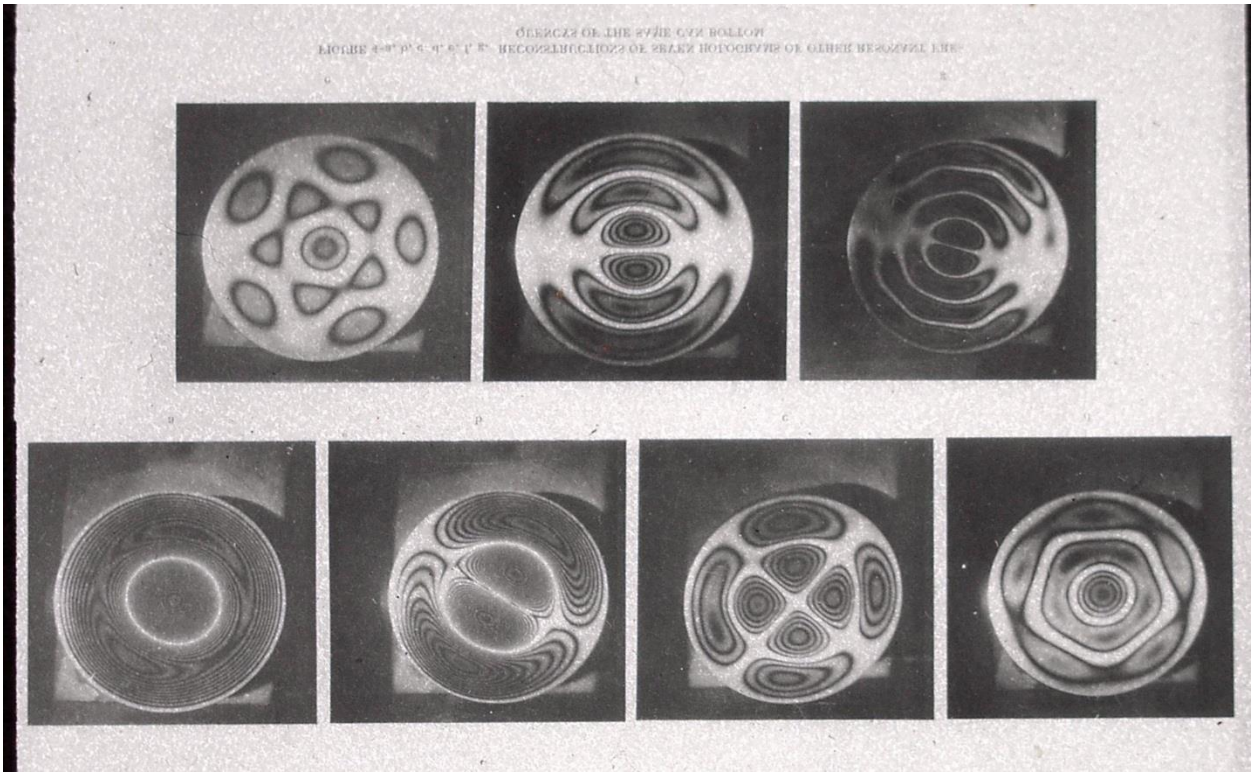
A hologram reconstruction showing the periodic coherence of a HeNe laser with a 60 cm cavity length. In the reconstruction from one of these holograms, a fringe was noticed in the nearest image of the illumination beam, which moved as the observer's head moved vertically.



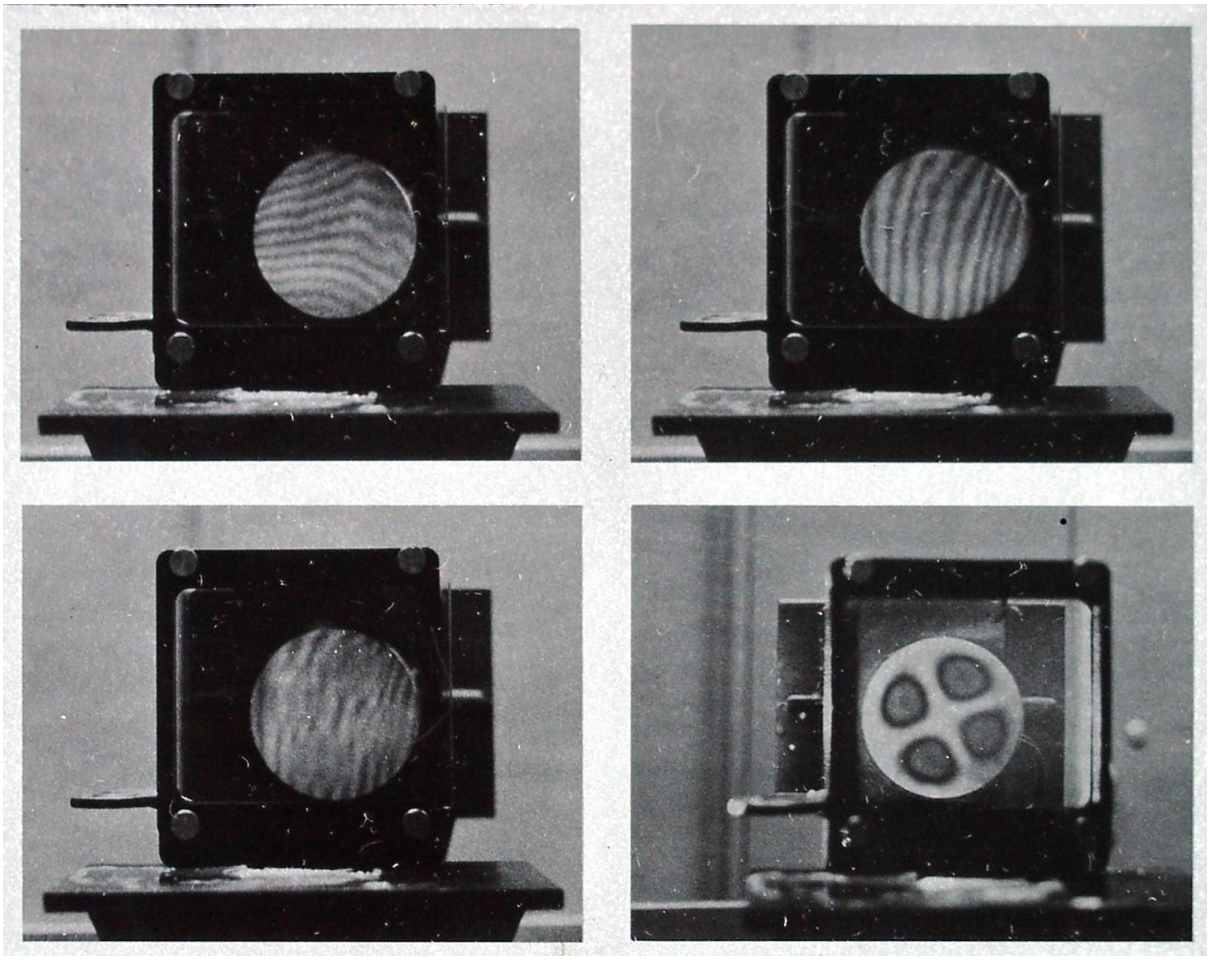
Three reconstructions from a hologram recorded with the laser adjusted to emit both a TEM00 mode and a TEM02 mode. No fringes were observed in the output beam, but fringes were observed in the reconstruction from the hologram. The three images show the fringe pattern when observed through the top, middle, and bottom of the hologram, and correspond to the top, middle, and bottom of the reference beam.



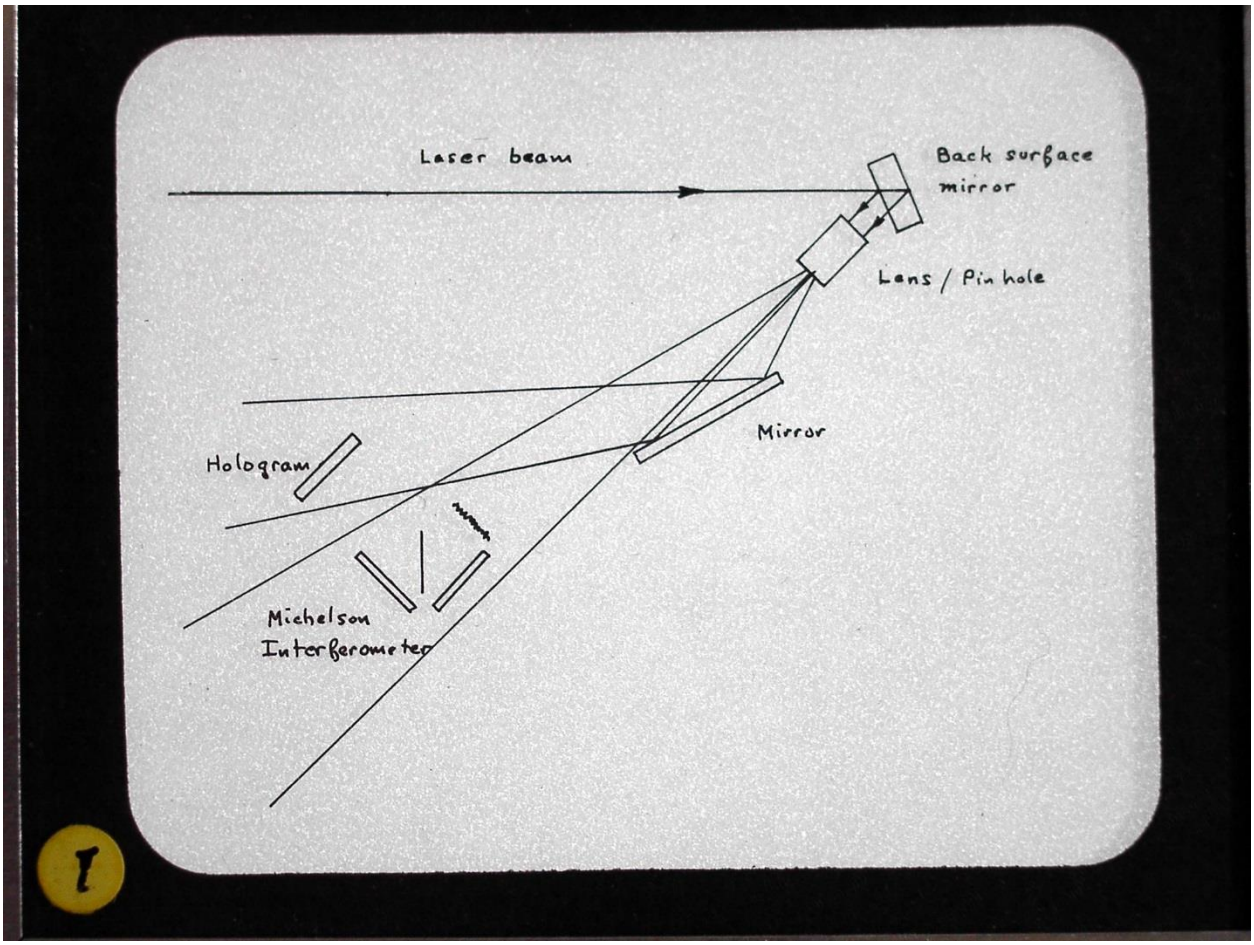
The first example of double-exposure holographic interferometry. Three separate holograms were recorded, each with two exposures, between which the a rotation was applied to the object, the illumination beam, and the hologram plate. All three showed fringes, the upper left example being very closely spaced.

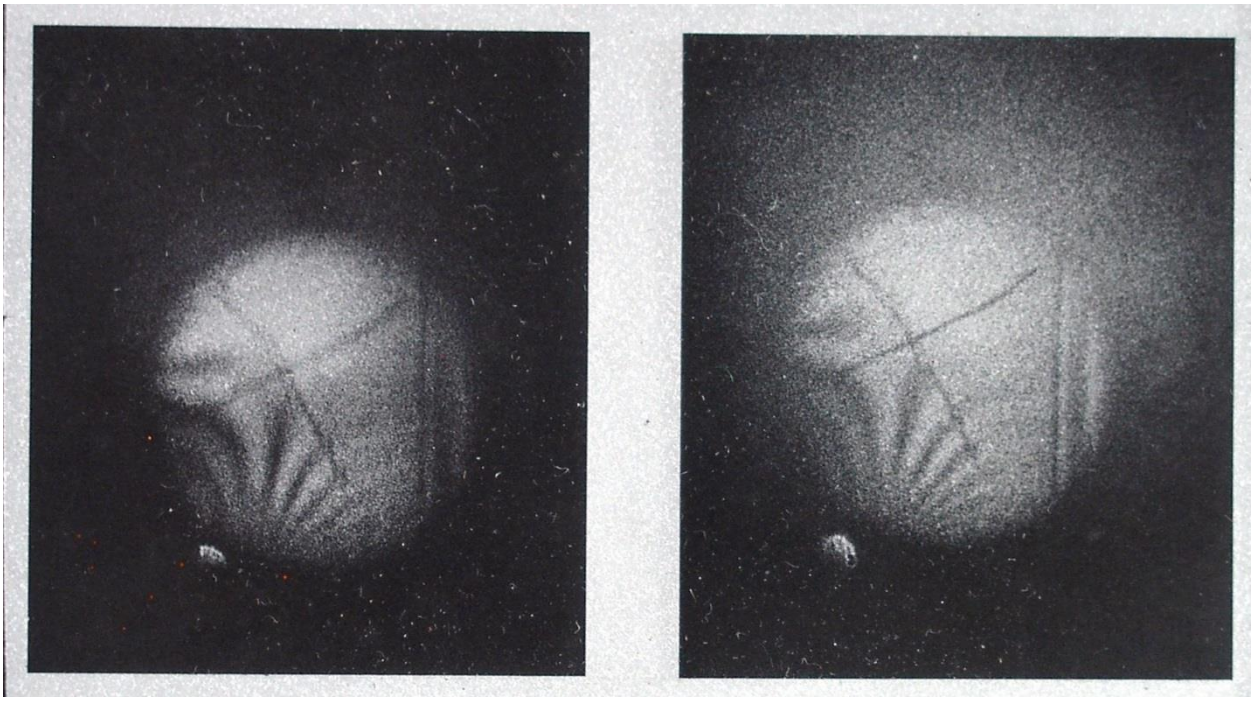


Seven examples of vibration patterns recorded via time-average holograms displaying fringe patterns corresponding to the zero-order Bessel function of the first kind. Note two patterns show five-point symmetry. These patterns are not single vibration modes but combinations of modes closely spaced in frequency.

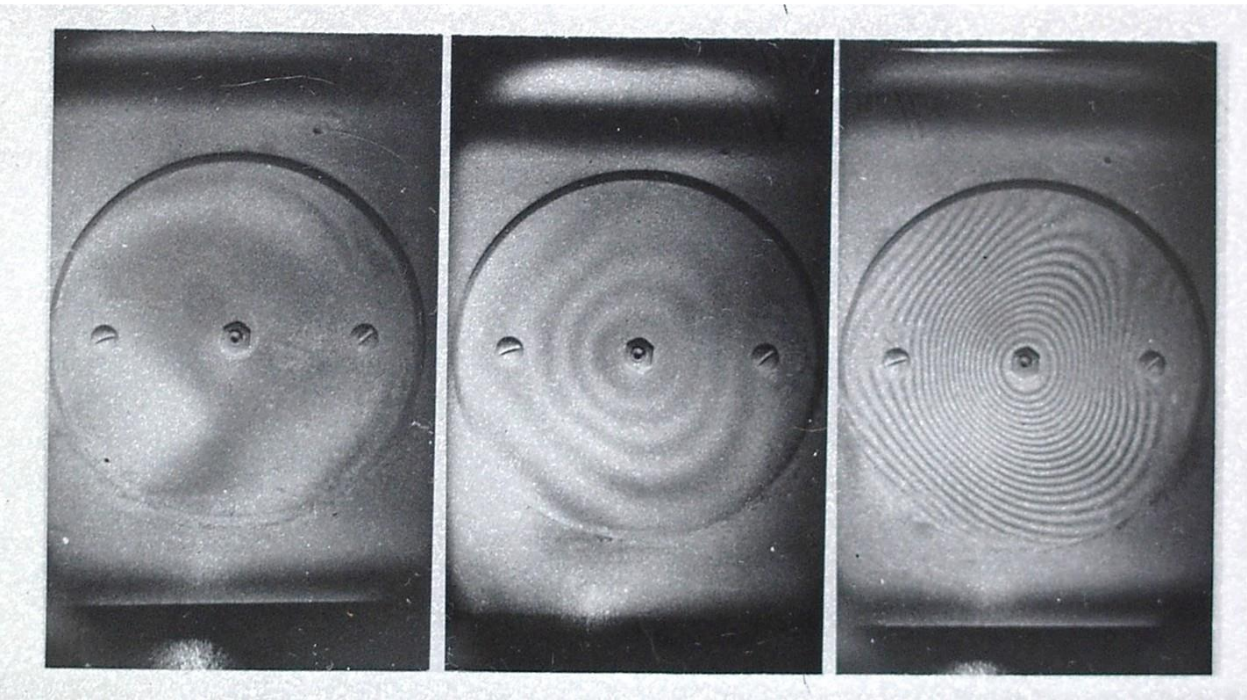


Examples of real-time holographic interferometry. The hologram was replaced in its holder with sufficient accuracy to allow interference between it and the light from the original object. The upper two images show horizontal and vertical fringes, whereas the lower left shows that object vibration modifies the visibility of these fringes and allows real-time vibration analysis. The lower right image is a reconstruction of a hologram recorded with the object vibrating is in the lower left image.

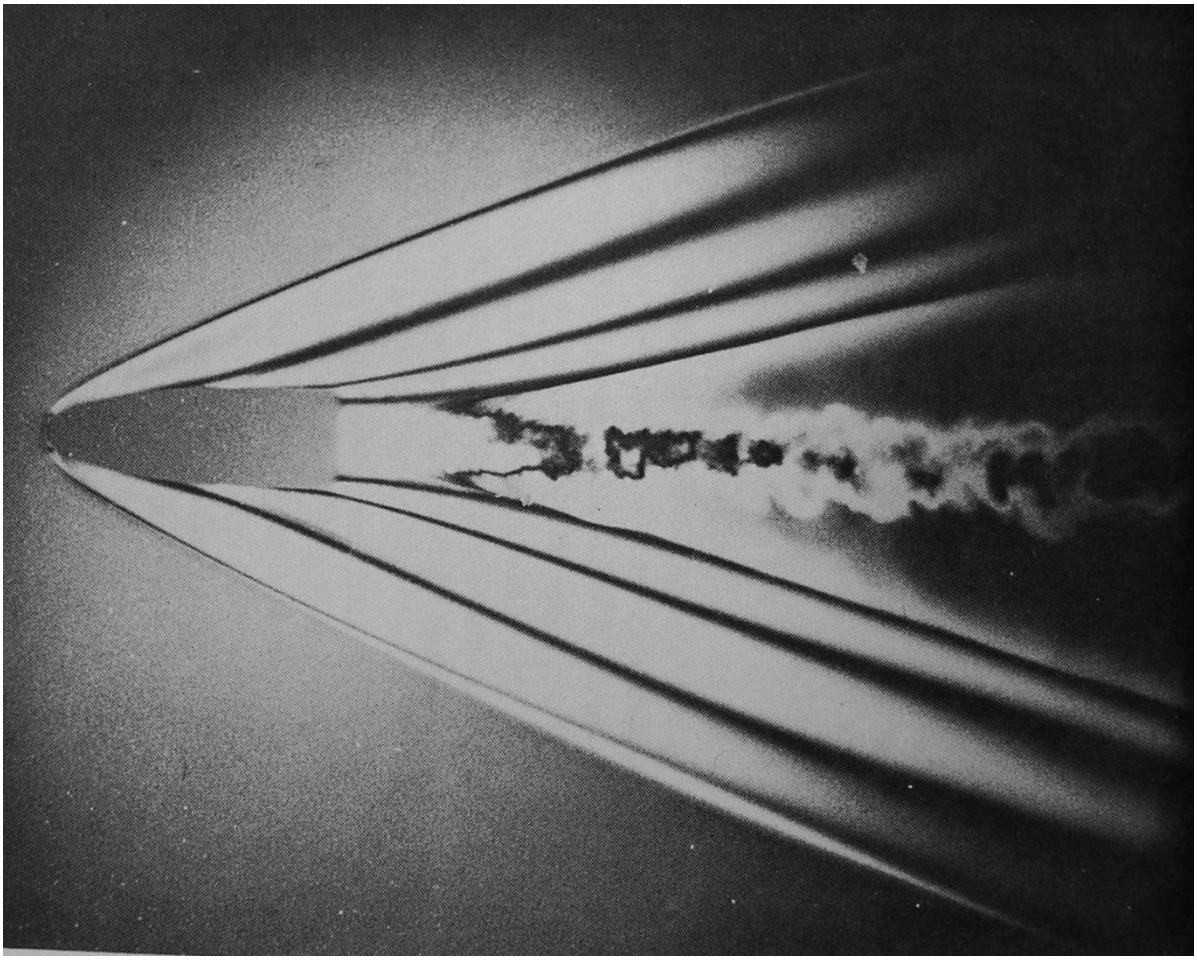

Laser beam
Back surface mirror
Lens / Pin hole
Mirror
Hologram
Michelson Interferometer
1



An experiment designed to show that sequential holographic recording of two fields is identical to holographic recording of the two fields simultaneously. The object is a small Michelson interferometer and two holograms were recorded, one where the two beams of the interferometer were present simultaneously (left) and one where they were present sequentially (right). The interference effects were identical.



Real-time holographic interferometry performed using our equipment showing deformation of a plate due to tightening of a bolt in the center. These results could have been obtained with our object had we thought to apply a direct current to the solenoid mounted behind the object surface.



Double-exposure holographic interferometry discovered by Brooks, Heflinger, and Wuerker using a pulsed laser. The laser accidently fired two pulses, one before the bullet was fired and one after.