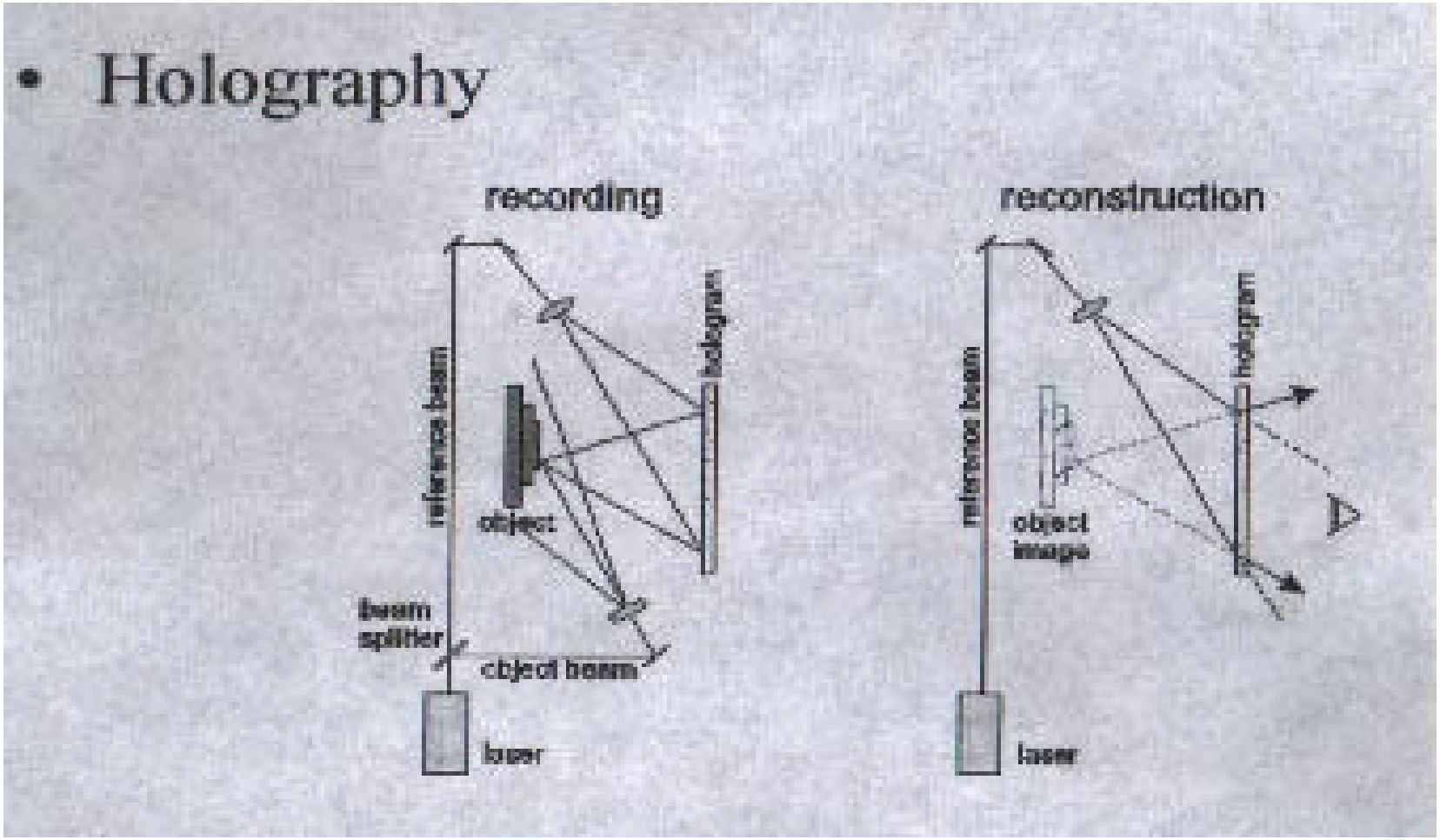
Holographic Interferometry(H.I)

- The Laser
  - the development of 3-d images
  - “Weird patterns”
- Fringes
  - Actual motion the object has experienced

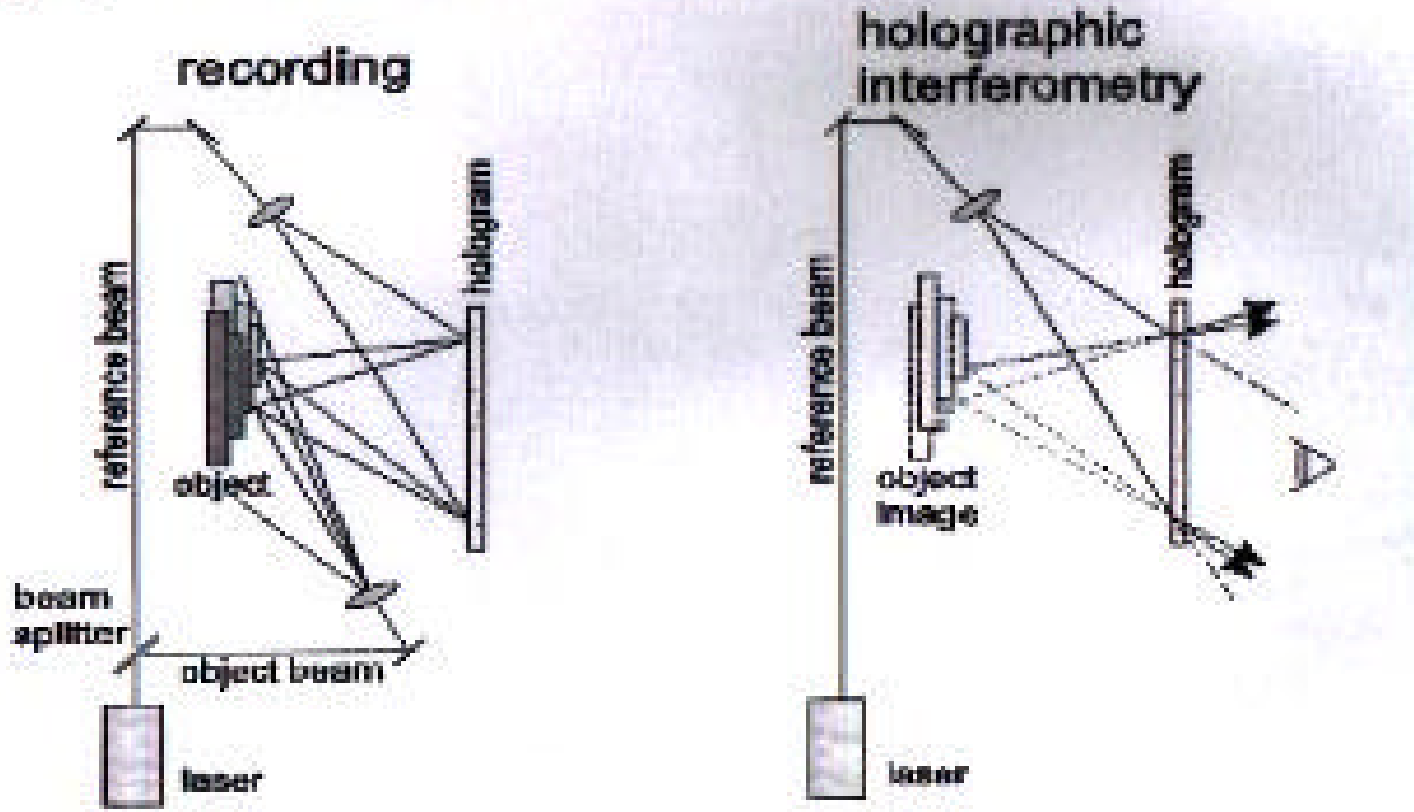
Holographic Methods

- Holography



Holographic Methods (cont.)

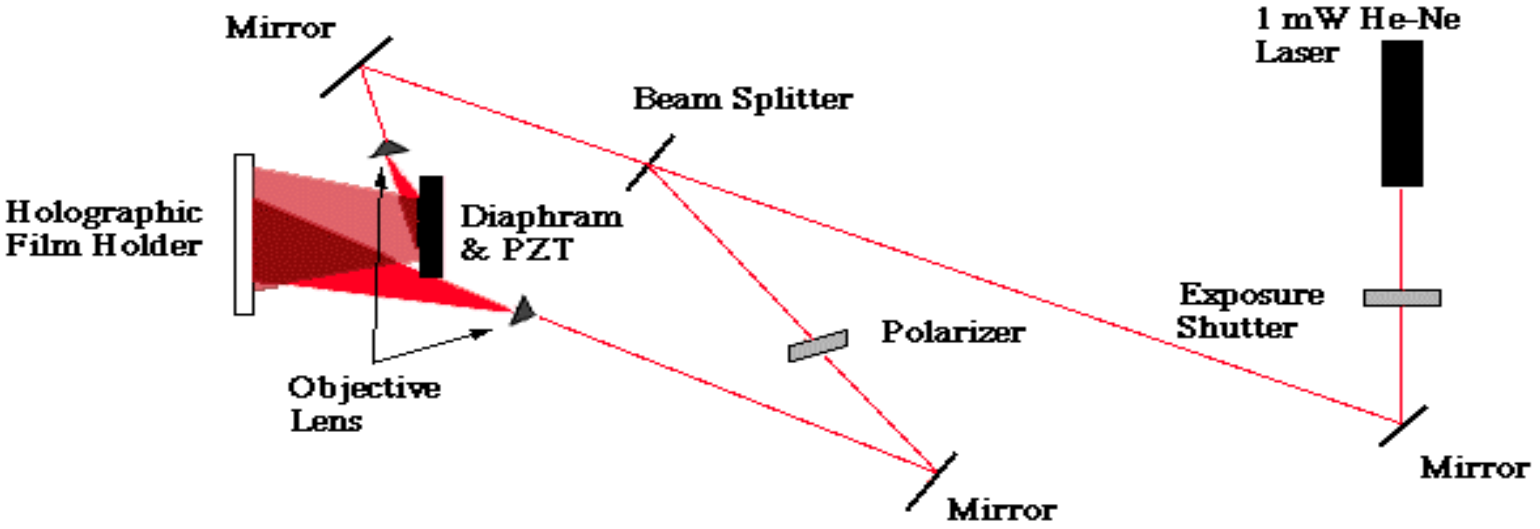
- Holographic Inteferometry



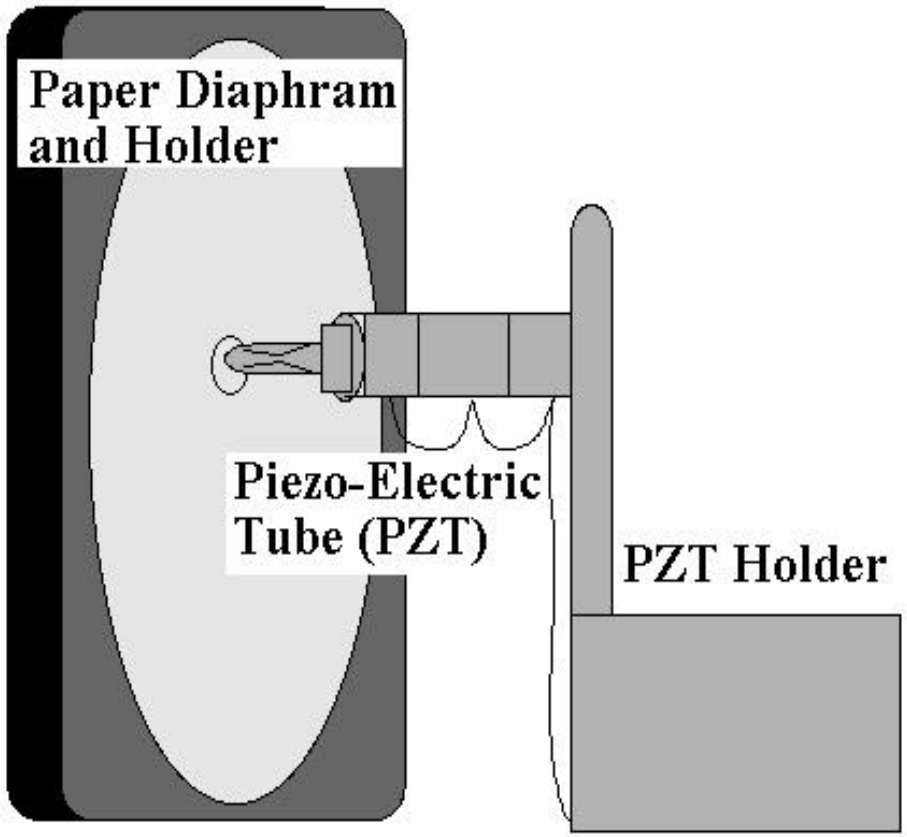
Experiment : The interference created by PZT (Peizo electric tube)

- Objective
- Setup
- Methodology
- Results
- Conclusion

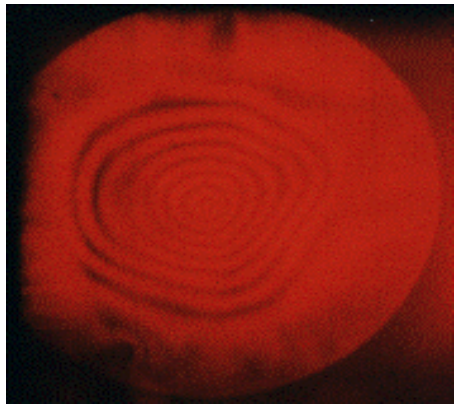
The setup of the components used to conduct the experiment



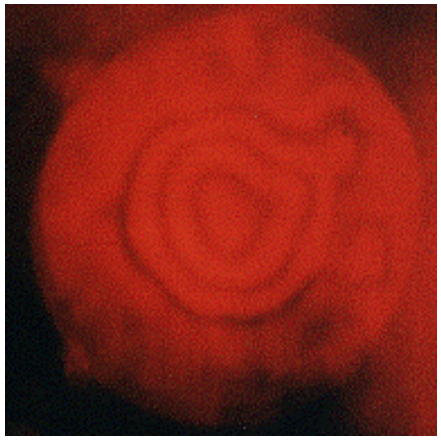
The result and the setup used



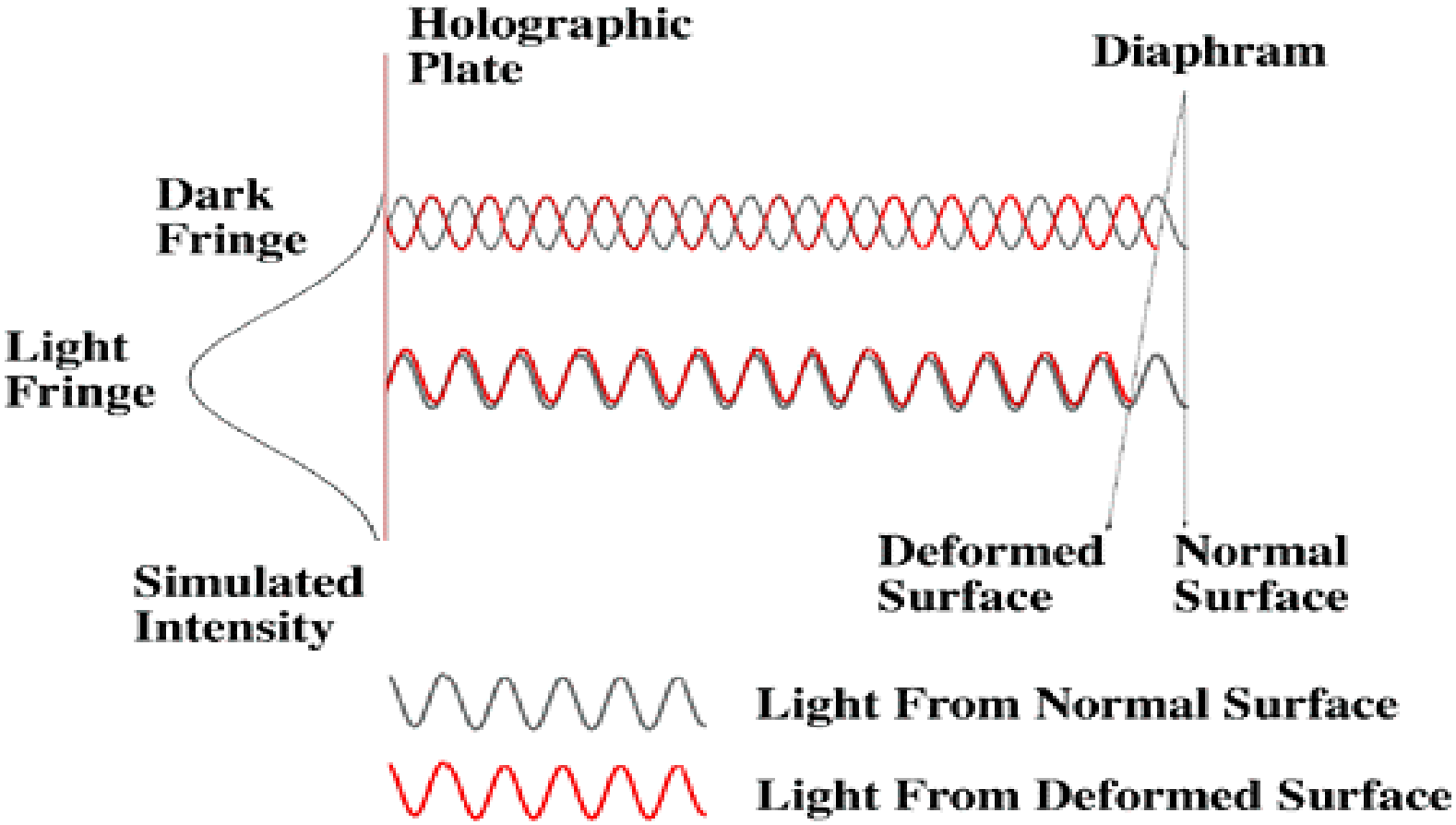
300 Volts



175 Volts

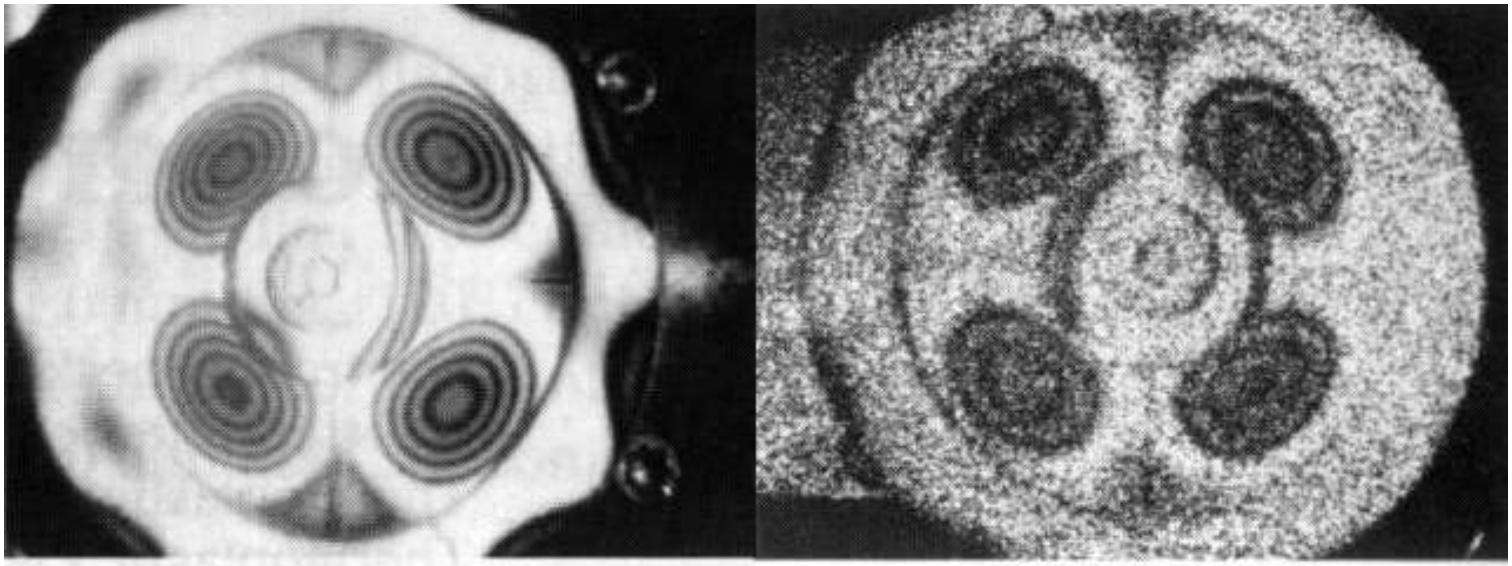


An explanation on the concept of H.I from the experiment



Another Useful Technique : ESPI

- Laser speckle
- Digitized images



Holographic image *ESPI image*

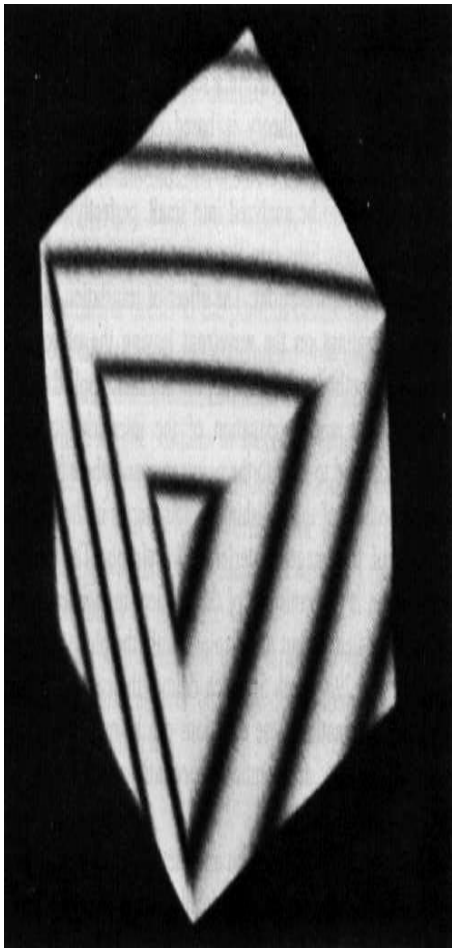
Comparison of H.I and ESPI

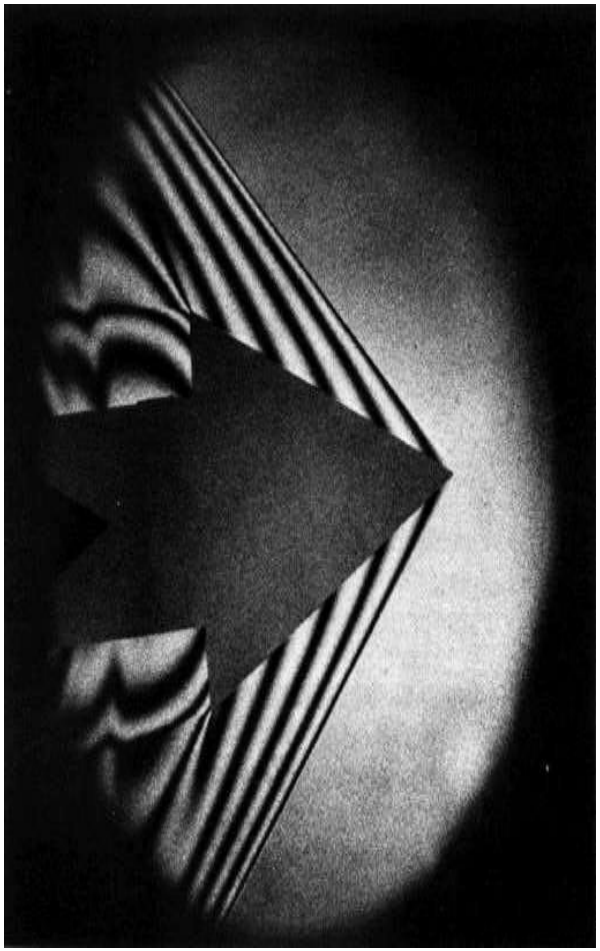
- Recorded Information
- Information results from,
- Measuring range
- Recording media
- Light source
- Evaluation Method
- Time for Recording and evaluation

Application of H.I

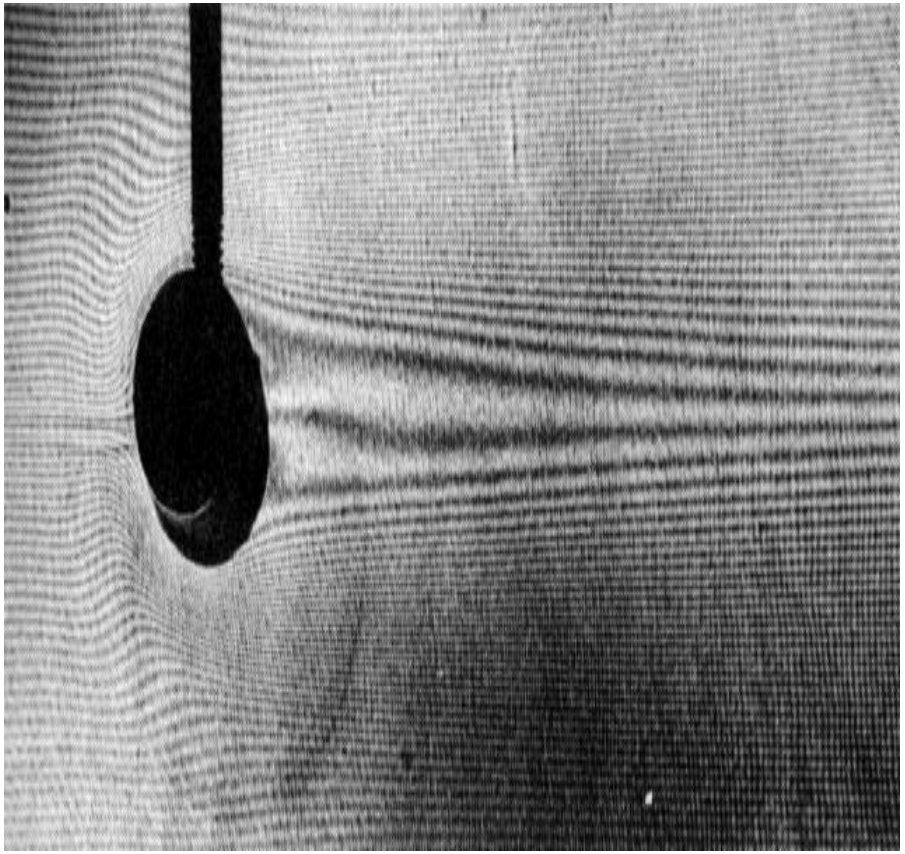
- Bending of a bar or beam (stress analysis)
- Thermal expansion of an aluminum cube
- NDT, irreplaceable artifacts
- Changes in phase of light beam
- Density of Gas, Fluids and solids
- Frozen fringe patterns

Application of H.I





Application of H.I(cont.)



Advantages and Disadvantages of H.I

- Advantages
  - Clear graphical representation
  - Simple data conversion
  - Improved efficiency
- Disadvantages
  - Small movements
  - No fixed distance

Conclusion

- Benefits to the various fields
- Efficiency and standards have been improved
- This tool is a very powerful ally