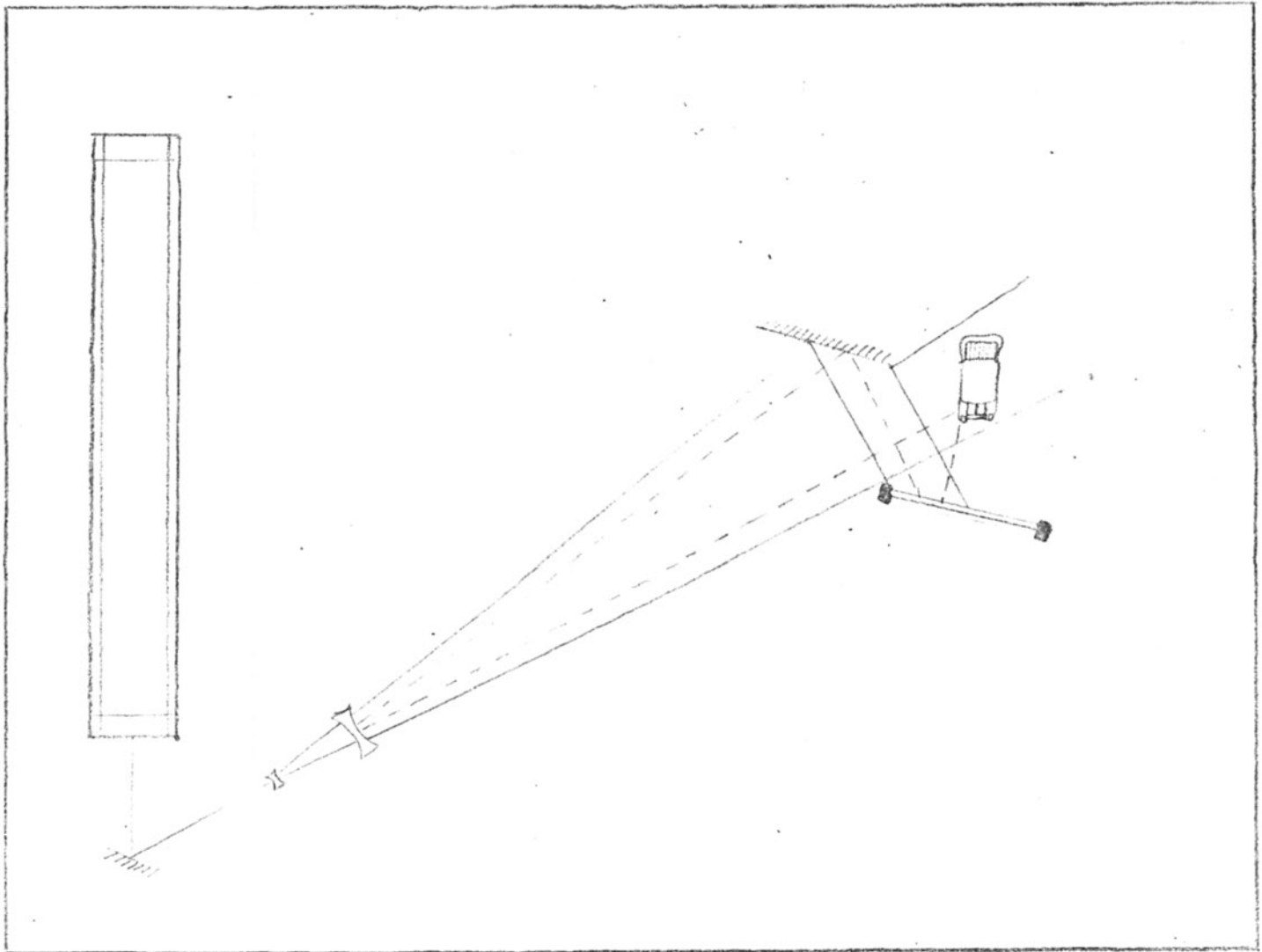


SINGLE BEAM TRANSMISSION

division of amplitude



NOTES

THERE IS NO BEAMSPLITTER IN THIS SET UP SO TECHNICALLY IT IS A SINGLE BEAM TRANSMISSION HOLOGRAM. THE ADVANTAGE OF THIS SET UP OVER THE SINGLE BEAM DEEP SCENE SET UP IS THAT THE OBJECT IS FRONT LIT, RATHER THAN BACK LIT. HOWEVER, THE DEPTH OF THE SCENE IS LIMITED TO A FEW INCHES. IT IS CALLED DIVISION OF AMPLITUDE BECAUSE THE SPREAD BEAM IS DIVIDED INTO TWO PARTS, ONE PART GOING DIRECTLY TO THE OBJECT AND THEN BEING REFLECTED TO THE FILM. THE REFERENCE BEAM IS THE OTHER PART OF THE BEAM THAT MISSES THE OBJECT, AND IS REFLECTED OFF A MIRROR TO MEET THE OBJECT BEAM AT THE FILM PLANE.

SET UP STEPS

- I. PUT SMALL MIRROR AT LASER EXIT TO DIRECT LIGHT DOWN DIAGONAL OF TABLE.
- II. SPREAD BEAM.
- III. PLACE OBJECT AND FILM HOLDER IN RELATIVE POSITIONS SO THAT THERE IS A FRONTAL VIEW OF THE OBJECT FROM THE VIEWPOINT OF THE FILM HOLDER, AND THE FILM HOLDER IS NOT IN THE BEAM PATH. MAKE SURE THE OBJECT IS WELL LIT.
- IV. MEASURE DISTANCE FROM LAST LENS TO OBJECT TO FILM.
- V. POSITION BIG MIRROR TO REFLECT LIGHT ONTO FILM PLANE WITHOUT HITTING THE OBJECT, MAKING SURE THE DISTANCE FROM LAST LENS TO MIRROR TO FILM HOLDER IS THE SAME LENGTH AS IN IV.
- VI. CHECK THE BEAM RATIOS.. REFERENCE BEAM INTENSITY SHOULD BE ONE TO THREE STOPS GREATER THAN THE OBJECT BEAM INTENSITY.
- VII. MAKE THE EXPOSURE READING WITH THE WHITE DIFFUSER CAP OFF THE LIGHT METER.
- VIII. EXPOSE AND PROCESS.
- IX. RECONSTRUCT THE HOLOGRAM.