

In this lab you will map contours of equal electric potential near conducting metal electrodes. The electric fields near the electrodes will be found from these equi-potentials.

Equipment: Field mapping tray with water; wires; one voltage source; two voltage meters; Cartesian graph paper.

Reference: Chapter 17 and 18.

Procedure

1. See model set up of the lab with instructor comments.
The poles should *not* be at opposite ends of pan near the edges. They should be about 8 cm or so from each other on central meridian. Check with your instructor on pole-to-pole distance
 2. Draw the electric dipole configuration on the sheet of graph paper.
 3. Place the stationary probe at a general point on the grid area which serves as the *reference* potential.
 4. Place moveable probe in the conducting water at some spot a significant distance from the stationary probe. Move the probe until the galvanometer or voltage meter gives a zero reading.
 5. Locate a series of 8 or 10 points of the same potential (zero reading) across the field region and draw a dashed lined curve through these points on the graph paper.
 6. Choose a *new* location for the *reference* probe 3 or 3 cm from the previous reference position and locate another series of equi-potential points; draw a dashed lined curve through these points on the graph paper.
 7. Repeat steps 3 to 6 and draw several equi-potential lines.
 8. Map the electric field lines using theory presented in class and textbook.
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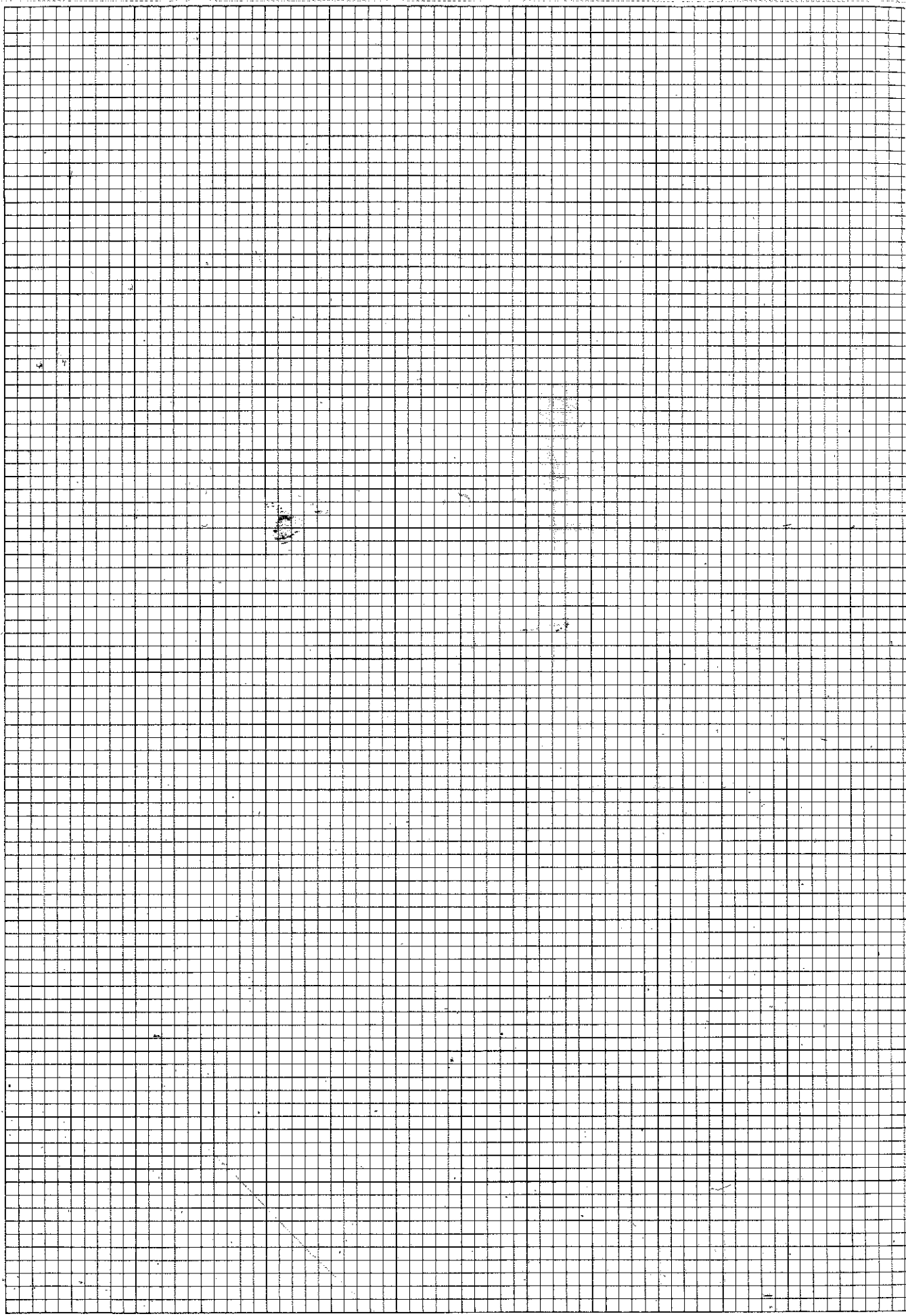
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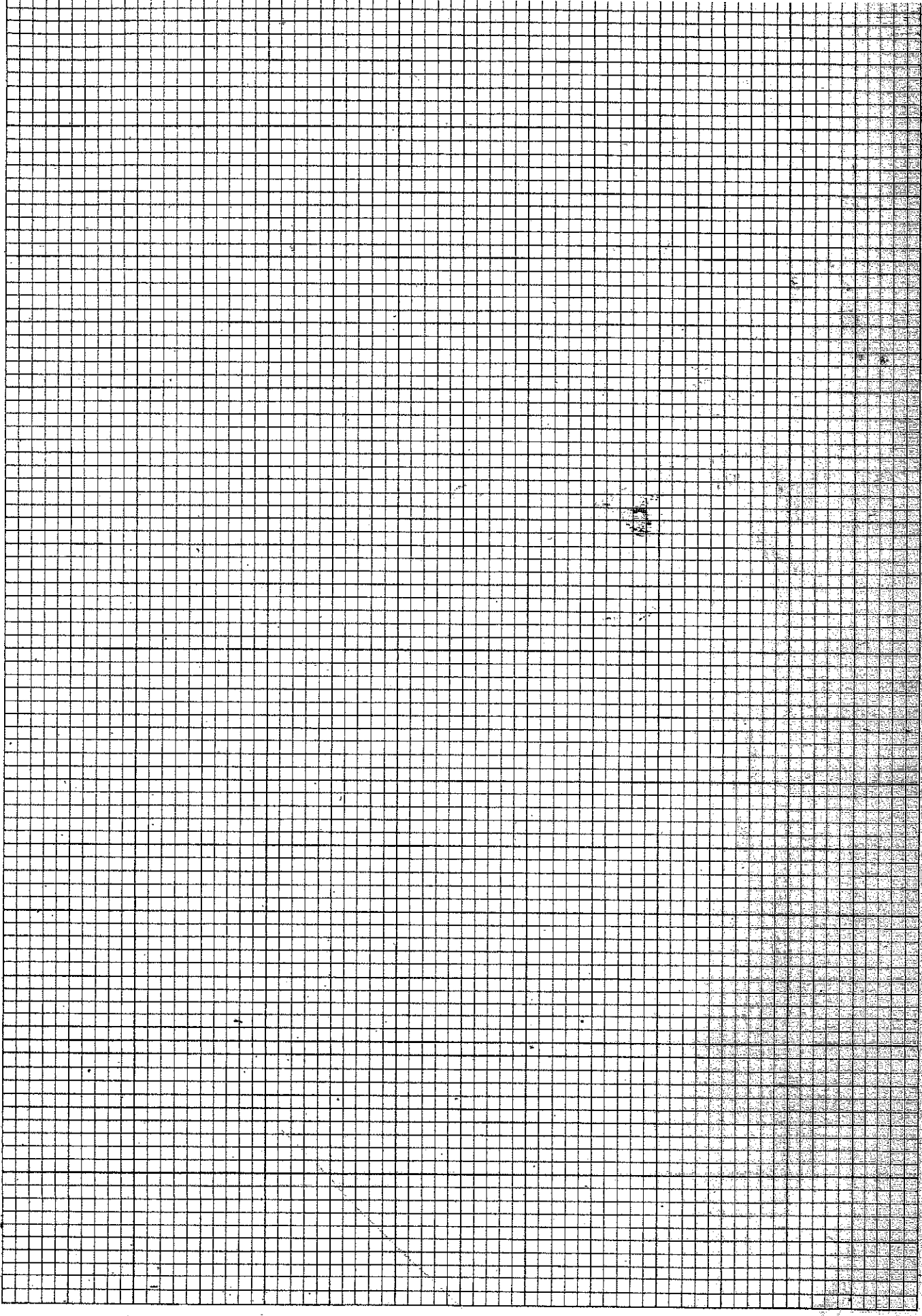
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