Speaker Autopsy: E&M Lab #12
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Objective: to investigate the method of producing sound by electro-magnetic means.

Equipment: small audio speaker, ohmmeter, D battery in holder, audio oscillator, amplifier, oscilloscope, tuning fork, safety glasses, knife, screw driver, hammer, chisel, razor blade

Procedure:
1. Measure the resistance of your speaker. What happens after the click?

2. Connect the battery to your speaker and notice which direction it moves (in or out). Test polarity.

3. Use the audio oscillator to determine the physical resonant frequency of your device. Is this the same value for everyone?

4. Connect the speaker to the input of an amplifier with a separate speaker as its output. Touch the speaker and describe the response. Talk into the speaker and describe the response. Try a tuning fork.

5. Connect the speaker to the oscilloscope. Touch the speaker and describe the response. Talk into the speaker and describe the response. Try a tuning fork.

6. Record all the physical dimensions of your speaker.

7. Carefully dissect the speaker with knives and razor blades without damaging the individual parts. Wear eye protection against flying debris.

   Draw a nice diagram or use photographs. Label everything.

8. Applications to everyday life.
   Future work

In your lab report describe Oersted’s experiment. Explain how a speaker works. Describe the relevant work of Joseph Henry and Michael Faraday. Include references.