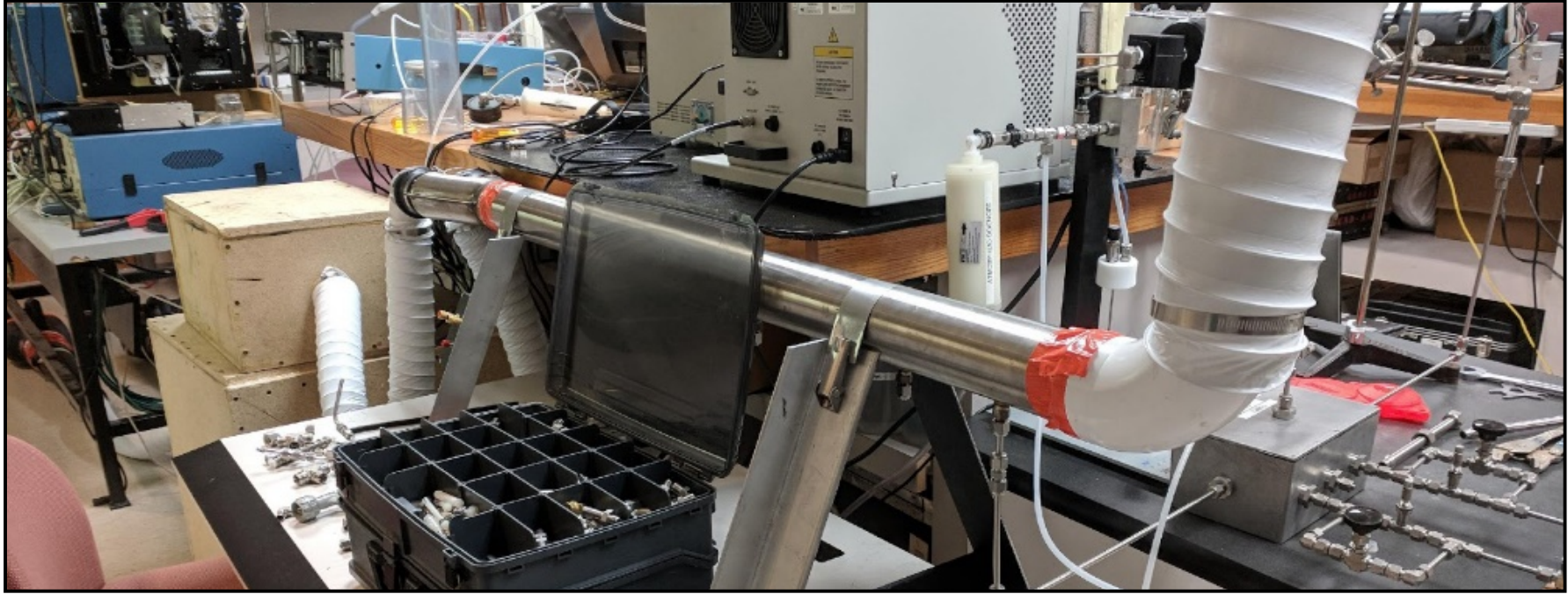


Experimental Plan to Evaluated Cloud Seeding Materials using Cloud Chambers



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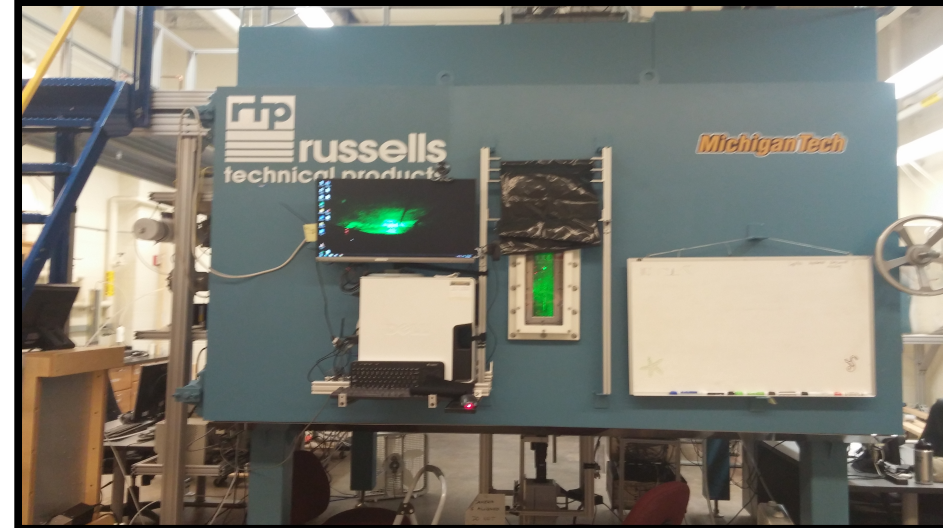
Experimental Objectives

- Use the Pi Cloud Chamber at Michigan Technological University to test Silver Iodide (AgI) cloud seeding flares.
- A flare burning and dilution system is used to produce AgI particles in desired concentrations by burning flares with air flow (70 knots) past the burning flare typical of a seeding aircraft.
- Determine the rate of ice formation after the introduction of an AgI plume into the cloud chamber.
 - Conduct ice formation rate experiments at different temperatures.



Experimental Method

- Conduct initial tests using Pi chamber in diffusion mode with liquid water concentrations of 0.5 g/m^3 and cloud condensation of 100 \#/cm^3 and 500 \#/cm^3 (check for type of ice nuclei activation).
- Measure activation rate (3-5 samples) at temperatures of $-4 \text{ }^\circ\text{C}$, $-6 \text{ }^\circ\text{C}$ and $-10 \text{ }^\circ\text{C}$. If time permits, include temperatures of $-12 \text{ }^\circ\text{C}$ and $-2 \text{ }^\circ\text{C}$.
- Process 1 hologram per minute for ~ 20 minute long experiment.
- Test two injection methods.
 - High (10^4 \#/cm^3) AgI Concentration Injection.
 - Low (10^2 \#/cm^3) AgI Concentration Injection.



Experimental Setup: Particle Generation System

3.0 inch Diameter, 4.0 ft

Long Aluminum Tube

**Tie Down
Strap**

**Electrical Flare
Ignition Box**

Tank

Air Flow →

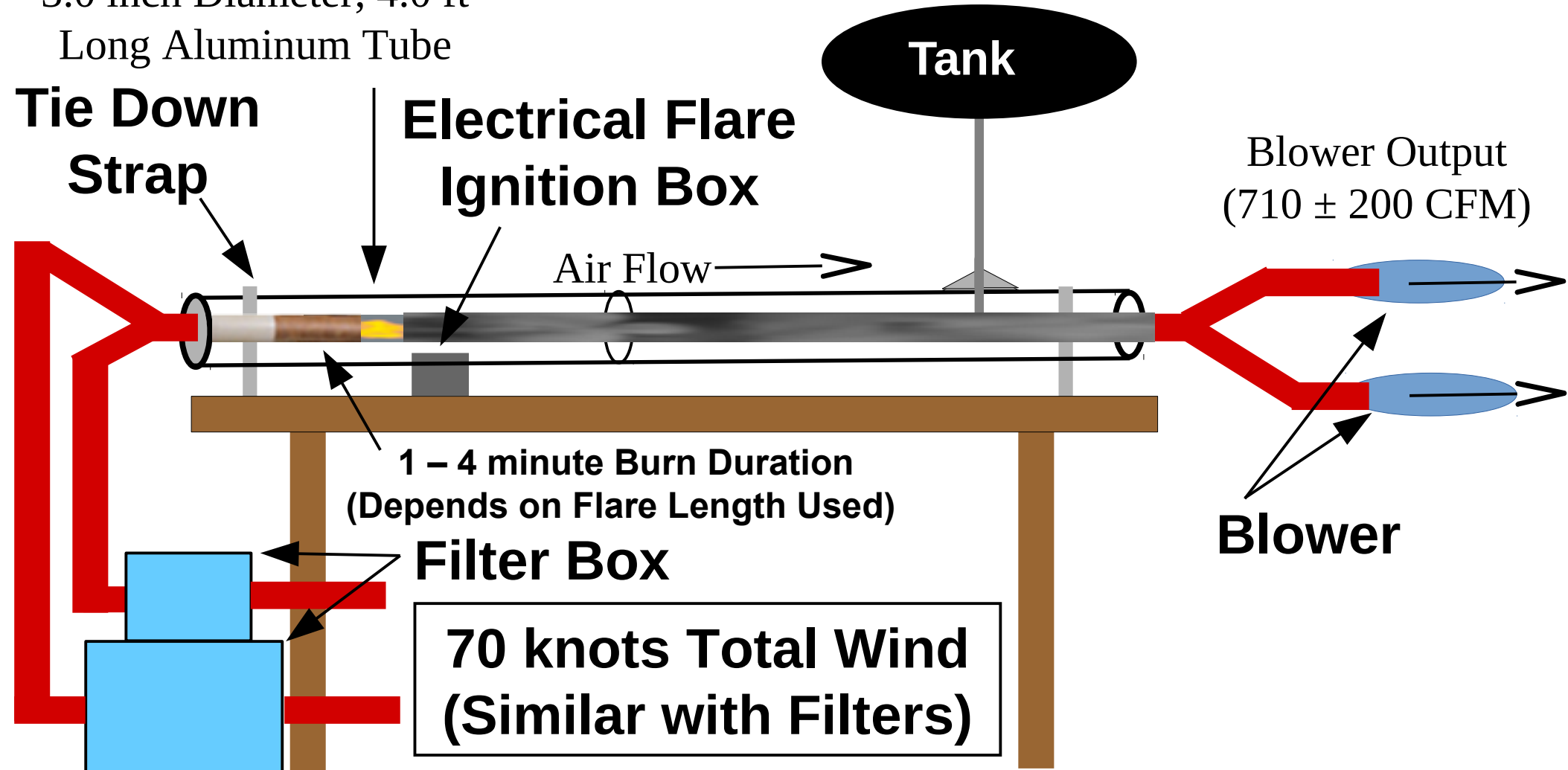
Blower Output
(710 ± 200 CFM)

1 – 4 minute Burn Duration
(Depends on Flare Length Used)

Filter Box

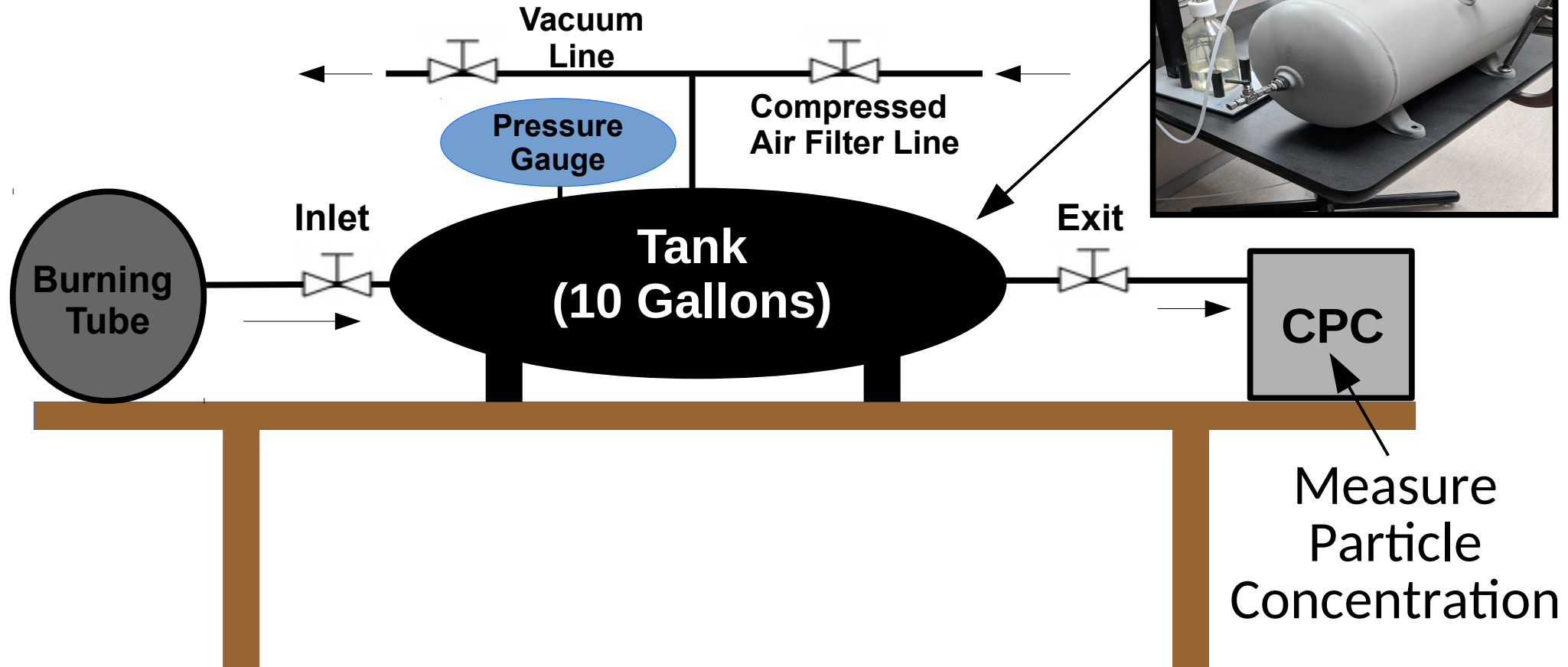
**70 knots Total Wind
(Similar with Filters)**

Blower

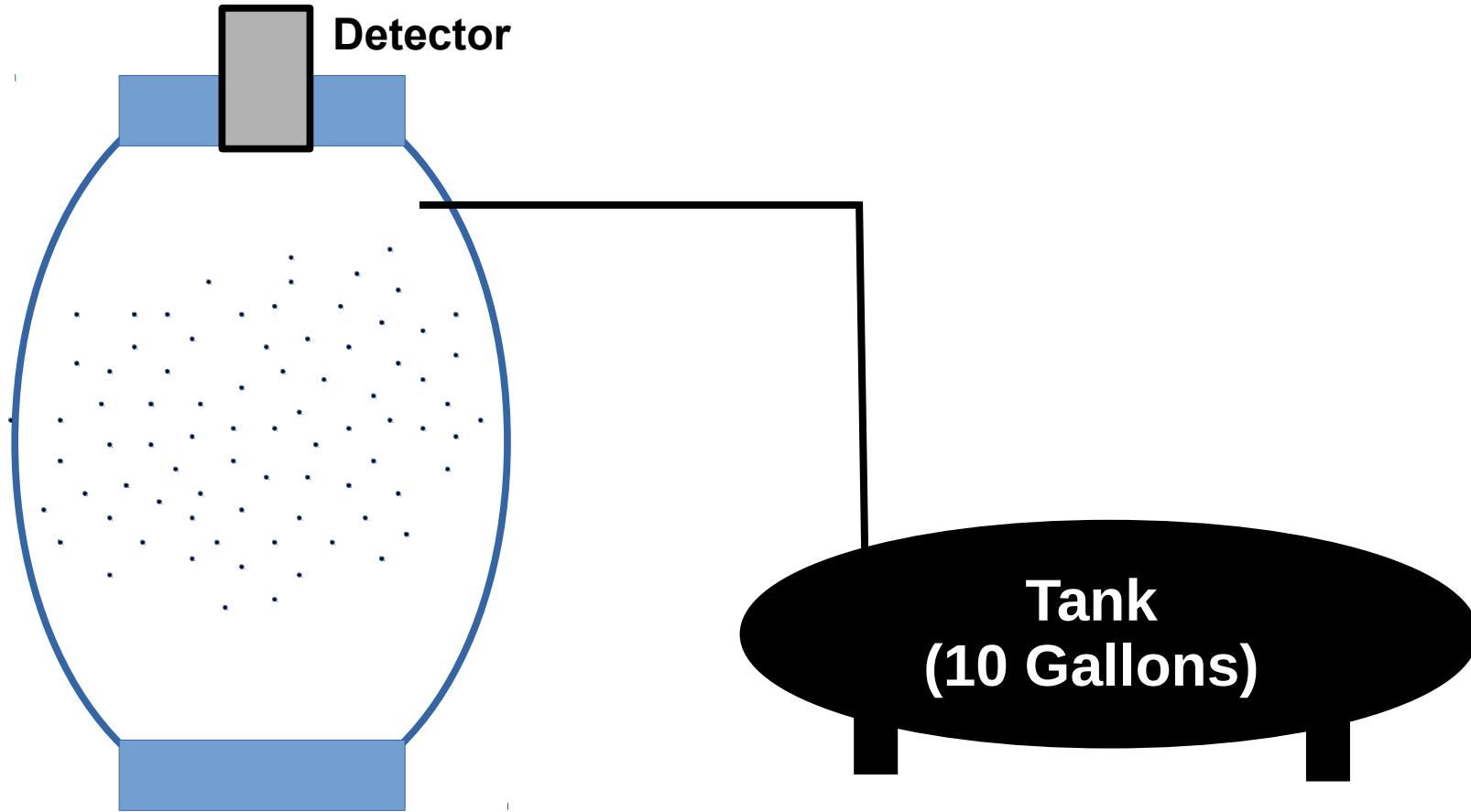


Experimental Setup: Tank Dilution System

Portable Tank Stores AgI Sample for Transfer to Cloud Chamber Lab.



Experimental Setup: Cloud Chamber



Draft Schedule

- Monday Morning:
 - Setup Flare Burning/Dilution System
- Monday ~ 12 – 1 pm:
 - Pick up Bruce from Airport
- Monday 2 or 3 pm
 - Planning Meeting
- Tuesday / Thursday
 - Conduct Experiments
- Friday Morning
 - Review Discussion Meeting.

