Materials:

- Clear Lexan tubes at least 25 cm in length
- Corks to plug sampling ports
- Incandescent lights
- Glass rod or similar instrument for tamping down materials in the column
- Tubs for mixing media.
- Scoops, spoons
- Newsprint (ink-free)
- Water (puddle, your source)
- Soil (your source of choice)
- Ammonium sulfate - NH₄SO₄
- Garden fertilizer
- Calcium sulfate - CaSO₄
- Glucose - C₆H₁₂O₆
- Top loading balance
- Weigh boats

Procedure: Work in groups of three

Figure 9. A Winogradsky column with ports for sampling the developing microbial populations.
Part B: Building the Column (refer to Fig. 9)

Keep a detailed record of the materials and amounts used to make your column. You will record your observations of your column over the rest of the semester. You must make 6 separate (on different days) macroscopic observations and 6 separate (on different days) microscopic observations. These should be drawn and colored.

1. If the materials you have chosen are rather large, break, cut, or tear them into smaller pieces.
2. Mix the inoculum and other materials together, and add enough water to made a mud-like slurry.
3. Put corks or rubber stoppers into all the sampling ports to seal them.
4. Pour a few centimeters of the mixture into the tube.
5. Tamp the mixture down so there are no air bubbles trapped in it.
6. Repeat steps 3 and 4 until just a few centimeters are left at the top of the column.
7. Using the same water source as for mixing the media, pour a layer of water in the remaining space.
8. Cover the tube loosely with Parafilm.
9. Illuminate the tube with the incandescent lights in the Carnegie greenhouse (access on 5th floor.)
Methods and Materials

Soil, containing an eggshell and a decomposing lemon that was gathered from the compost pile at the Wood Street garden at Bates College on September 24, 2002, was layered in a glass column over a mixture of 2 grams of glucose, 2 grams of calcium phosphate and 1 gram of ammonium sulfate. The soil was packed tightly into the cylinder using a glass pipette, until it filled about half of the cylinder) measured about half way up the container. After the soil was packed, pond water obtained from Lake Andrews at Bates College on September 24, 2002 was added to the cylinder leaving about 1 to 2 cm of space at the top of the container. A stretchy plastic cover was placed over the top of the cylinder to prevent evaporation. The cylinder was placed in the greenhouse on the sixth floor of Carnegie Science building, after initial observations were made of the cylinder on that first lights?