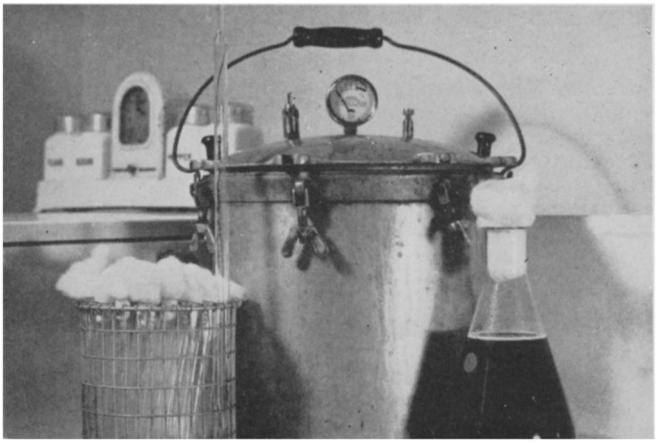
Use the Home Pressure-Cooker to Sterilize Your Culture Media

Most small schools have no autoclave in which to sterilize media for growing bacteria. Books tell how to boil the stuff for an hour and if growth starts on it within a day or so to boil it again.

For the biology laboratory of limited resources, the easiest way to get ready for studying bacteria is to go about it as follows: Have several pupils thoroughly wash and dry 40 test tubes and about 20 Petri dishes. Show a couple of girls how to roll cotton plugs for the tubes so that they will fit tightly enough to sustain the weight of the tube and stick out about the mouth of the tube at least 1½ inches. Have two more pupils wrap the dry Petri dishes 4 at a time in clean paper. Sterilize the Petri dishes so wrapped in a dry oven at a temperature just below the kindling point of the paper for about 90 minutes.

By using prepared nutrient agar in powdered form much time may be saved. It will be necessary only to add this (in quantities suggested on the bottle) to cold water, and bring to a boil (a 1000-ml. Erlenmyer Pyrex flask is ideal) to dissolve the constituents. Then with a pipette, the test tubes can be filled about ⅓ full with the hot nutrient agar. Don't *pour* it into each tube as this will leave some agar on the sides near the top, and when it cools, the cotton plug will be glued in! That's why the pipette! Put the plugged tubes of medium in a wire basket or tin can and then into the pressure-cooker. Fasten on the top, open the pet-cock and boil until steam comes out of the pet-cock. This drives out most of the air. Close cock and let pressure rise to 15 lbs. Let it remain there for 20 minutes and turn off source of heat. Allow pressure to fall by slow cooling, and when 0 pressure registers, open the pet-cock, unfasten the cover, remove the tubes and allow them to cool. About 20 of the tubes should be cooled in a reclining position so that agar slants will result. The others can be poured directly into the Petri dishes for culture plates, or can be re-melted later in hot water for pouring.

An improvised Arnold steam sterilizer can be made from a large tin can (such as a 5-gallon oil can) by cutting out the top and punching a half inch hole in the bottom. Invert over a pan of boiling water. The culture medium to be sterilized (in a flask) is placed on an inverted wire basket inside of the tin can. Steam from the boiling water will then surround the material to be sterilized. About a half hour of this treatment should be long enough if repeated 24 and 48 hours later.



Donald S. Lacroix,
Amherst High School,
Amherst, Massachusetts

Next month: *Field Trips Issue II,* with Lee R. Yothers of Rahway, New Jersey, as guest editor. Articles by Paul B. Sears, H. E. Jaques, Elmo N. Stevenson, C. M. Farmer, Robert C. McCafferty, and others.