

# Carnegie Institution of Washington

DEPARTMENT OF BOTANICAL RESEARCH

DESERT LABORATORY

TUCSON, ARIZONA

## INSTRUCTIONS FOR INSTALLING AND OPERATING THE POROUS CUP EVAPORIMETER.

A. Slide rubber stopper on to glass tube till end of tube reaches to within about one centimeter of closed end of cup, when stopper is in place in open end of cup. Slide cork stopper on to opposite end of tube until it approaches rubber stopper. Fill pint Mason fruit jar one-half full of distilled water. Fill cup with distilled water and insert proper end of tube therein, forcing rubber stopper securely into open end of cup. Water will rise some distance in tube. Completely fill tube, using clean wire or pipette to allow air to escape. Allow excess of water to flow down sides of tube, then quickly invert cup and tube (external water will now form drop on end of tube, which will prevent air entering) and plunge free end of tube into water contained in jar. Air must not be allowed to enter tube. Push cork stopper down tube till it fits snugly into place in mouth of jar, lower end of tube resting lightly on bottom of jar. With file make scratch on outside of jar eight centimeters (three inches) below level of lower end of cup as now placed. This is standard level, to which jar is filled at each reading. If pint jar is inadequate to hold water for a week, a quart jar may be substituted, glass tube being withdrawn a few centimeters from the cup. Standard level must remain eight centimeters below cup.

Bend oblong sheet of tin around jar so as to form casing, and plunge jar, so encased, into soil till upper edge of jar is level with surface. Pack soil around casing in such way that jar fits well in casing, but can be lifted out without removing casing. Place paraffined cloth roof just above jar, so as to keep rain water from cork stopper.

Lift jar out of casing. Loosen cork stopper, lift slightly, and slide it to one side till tube touches edge of jar. Fill jar to standard level from graduate flask, being careful not to let entering water carry air to bottom and allow it to enter tube. If this occurs, cup must be refilled, so as to be sure that no air is contained. After filling, all parts are to be returned to place, and instrument is ready for an evaporation period.

Observers can judge whether or not it is necessary to protect instrument by four stakes and rail, chicken wire, etc. The instrument should be placed in position to receive direct sunlight all day and wind from any direction.

The instrument should be read once a week, always on the same day, preferably Monday, and at as nearly the same hour as possible. To read it, raise jar and open it, in manner described above, refill to standard level, making record of amount of distilled water needed. Replace all parts. Enter record on postal card and mail on same day. Observer should keep on file a copy of all records.