out along the $y$ axis, and then for a single vessel and a particular gas the slope of the curve is established by determining from equation (2) the value of $k$ at an arbitrary value of $V_F$ (*e.g.*, 5,000 cu. mm or 5.0 cc), and plotting this point on the chart. A straight line through this point and the corresponding intercept point gives the calibration curve for the particular vessel and gas. Lines parallel to this are now drawn through the intercept points for the other vessels, and the complete chart for one gas and for all the vessels is thus obtained. The curves for a second gas may then be drawn on the chart in like manner.

Similar charts may be prepared for a number of different temperatures, but it should be noted that a change from one temperature to another will alter not only the slope of the curves but also the intercept, since both components of the right-hand side of equation (3) are functions of temperature.

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## DETERMINATION OF RELATIVE HUMIDITY WHILE MEASURING RESPIRATION IN A GAS TRAIN SYSTEM[1]

RECENT studies on the sterilization of papayas at 110° F., as prescribed by federal quarantine regulations, indicated that the relative humidity of the treating medium was of distinct importance. For instance, it was found that at approximately 100 per cent. relative humidity the fruits were severely injured, while if the humidity was lowered to 80 per cent., injury did not occur. Hence, in conducting respiration studies it was considered desirable to measure the relative humidity with the accuracy of a sling psychrometer and yet enclose the psychrometer in the gas train. The apparatus shown in Fig. 1 served this purpose. It is constructed from a glass tube 25 mm in diameter and approximately 100 mm long. Two openings in the tube take No. 0 stoppers to hold the thermometers, and a small bulb blown opposite one of the openings serves as a reservoir for the wet bulb thermometer. The ends are brought down to a diameter of 8 mm and tubing of this size is sealed to each end. The apparatus is then sealed in the gas train system and may be immersed in a water bath at any desired temperature. The air in this apparatus should be circulated at a speed of approximately 15 feet per second to obtain accurate readings on the wet bulb.

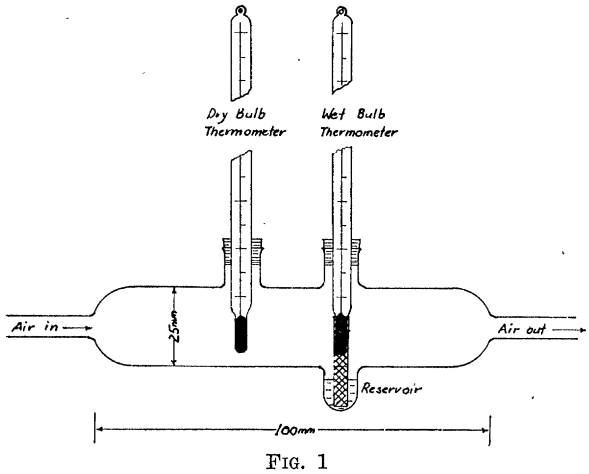


FIG. 1

[1] Published with the approval of the director as Technical Paper No. 54, Hawaii Agricultural Experiment Station.

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