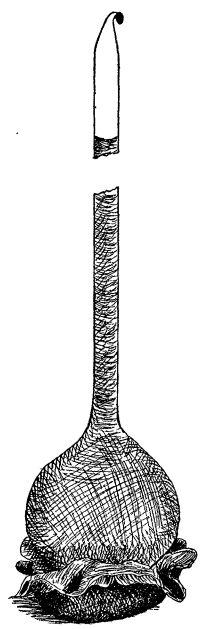
magn.; on April 12 it was 0.40 magn., and on May 6 and 7 it was imperceptible and apparently less than 0.1 magn.

EDWARD C. PICKERING.

HARVARD COLLEGE OBSERVATORY, May 8.

A SIMPLE OSMOMETER.

THE end of a thistle tube is drawn out, broken off and closed temporarily with wax. The bulb is then filled with molasses and a piece of pig's bladder,* is securely but loosely tied over the



mouth. The wax is removed from the end of the stem and the end well fused. Two thicknesses of strong linen are tightly drawn and securely tied over the membrane to take the strain. The bulb is then placed in water, when in a few minutes the column of liquid becomes higher and the air column compressed by the osmotic action through the membrane.

In two or three days the maximum pressure is obtained, then the length of the air column is taken. The air in the stem is allowed to expand to its normal condition by puncturing the membrane with a needle and the length of the air column measured; which length, divided by the length under compression, gives the pressure in atmospheres.

The greatest pressure I have yet obtained with an apparatus of this sort is the expansion of 1.5 cm. to 13.2 cm., showing a pressure of 8.8 atmospheres, or 668.8 cm. of mercury, or 129 pounds per square inch.

The highest pressure I find recorded for Pfeffer's cell is 436.8 cm. mercury.*

The air column after expanding will not be so long by six to eight per cent. as it was before compression, showing that some of the air has been absorbed by the liquid.

The accompanying figure will serve to show how the apparatus is arranged.

E. E. BOGUE.

LABORATORY OF PHYSIOLOGICAL BOTANY, HARVARD UNIVERSITY, April 16, 1901.

* These bladders may be obtained of Kny-Scheerer Co., 19th street and 4th Avenue, New York City. They are clean and dry like parchment, and cost ten cents each or one dollar per dozen.

* Goodale's 'Physiological Botany,' Vol. II., p. 229.

CURRENT NOTES ON PHYSIOGRAPHY.

PHYSICAL GEOGRAPHY OF THE TEXAS REGION.

THE third folio of the Topographic Atlas of the United States is entitled 'Physical Geography of the Texas Region' by Hill. It may well serve as a type of many to follow. Twelve folio pages are given to text, chiefly concerned with an explanation of relief and drainage; then follow a sheet of nine climatic and other diagrams, four sheets holding 22 photographic views of typical landscapes, five sheets presenting 24 small topographic maps of typical reliefs and streams, and finally a folded map of Texas drawn under Hill's direction by Selden and Johnson on a scale of 25 miles to an inch with contours every 250 feet. The imperial area of the 'Texas region' is indicated by the statement that each of more than twenty physiographic subdivisions has an extent equal to that of an average State. Mountains, plateaus and plains, canyons, valleys and waste-floored basins (bolsones) are described in so great variety that selection for special remark is difficult. Descriptions are marked by a thorough-going adoption of explanatory methods, such as have always found ardent ad-