incubator, operated side down, to be further incubated for six to twelve hours.

For demonstrating the membranes, the shell is broken at the air sac and the entire egg immersed in a suitable dish of cold water. Enough of the shell is then removed to allow the contents to gravitate free into the dish. With a reasonable amount of care this may be accomplished without injury to either the yolk or allantoic membranes. Small tears in the stained allantois will not damage the preparation and dye escaping from the allantoic cavity may be washed away.

After the intact egg membranes have been viewed by the students the allantois is grasped about a quarter of an inch from its edge by means of smooth forceps and slightly tensed to bring into view the chorionic membrane as it stretches across from the allantoic sac to the yolk sac. With small scissors the chorion is cut along the edge of the allantoic sac without injury to other membranes. This allows the allantois to float free, except for attachments at its stalk and seroamniotic connection, both of which are plainly seen. The freeing of the allantoic sac brings to view the vitally stained[2] embryo surrounded by the amniotic sac resting on the yolk sac. The amniotic fluid is clear. While the embryo is alive filter paper tests are negative for traces of the dye in this fluid. The yellow colored yolk sac, the slate blue embryo in the clear amniotic fluid and the intensely stained allantois give a very beautiful and complete picture of the development and relations of the membranes.

If it is desired to preserve these demonstrations, a piece of glass suitable for mounting in a specimen jar should be placed in the bottom of the dish prior to removing the egg from its shell. The egg contents are oriented upon it and the water replaced with a solution of 10 per cent. formalin and 1 per cent. HCl; fixing for twenty-four hours. The albumen hardens and sticks to the glass, after which the preparation may be mounted in a solution of 4 per cent. formalin and 1 per cent. HCl.

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DEMONSTRATING THE ASKENASY EXPERIMENT

AT the Kansas City meeting of the association a method of repeating the Askenasy experiment to show the raising of a column of mercury by evaporation from a water film as a classroom demonstration was described by Dr. B. E. Livingston. A similar method which has given superior results had been used for four years by me to demonstrate this principle to the classes in plant physiology at the University of Pennsylvania. The important requirements for success are:

(1) To boil the porous porcelain cylinder for several hours to remove all air.
(2) A perfectly clean glass tube which is filled with boiled water.
(3) A tightly seated rubber stopper.
(4) Clean mercury.

The glass tube is filled with boiled water by suction and it is attached to the clay cylinder while the latter is in the cooled boiled water. The water is held in the glass tube by closing with a clamp a piece of rubber tubing previously placed on the upper end (*i. e.*, before inversion) of the glass tubing.

Rises of over ten inches have been secured in an hour. The greatest total height recorded was twenty-eight inches after fifteen hours. A rise of twenty inches in several hours was not unusual when conditions favored rapid evaporation.

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SPECIAL ARTICLES

DEWBOWS BY MOONLIGHT

DEWBOWS formed at night when light from a street lamp fell on small fog particles which had settled to the ground and retained their spherical form were observed by Knott and Lundie.[1] When the source of light was a gas lamp the bow was white, but when a more powerful electric lamp was used the rainbow tints were observed. The bows changed shape when either the horizontal distance from the observer to the source of light or the elevation of the observer's eye above the ground was changed, because the light from the lamp was divergent.

Maxwell[2] described a bow, seen at noon on an ice surface. This bow he attributed to water drops resting on the ice surface. Colors were present.

A. E. Heath[3] described a bow in the shape of a hyperbola produced by the sunlight on dew. This dew had settled on gossamer which covered a cricket field.

Several times during the past year, the writer has observed on the campus of the Rice Institute dewbows which differ from those described in the literature in that they were formed by moonlight shining on dew on a grassy surface. When the bows were seen the moon was always shining brightly from a position well above the horizon and the grass was wet with

[2] The capricious staining of the embryo by absorption of the dye from the allantoic fluid is still under investigation.

[1] Proc. Roy Soc., Edinburgh, 1898.
[2] Proc. Roy. Soc., Edinburgh, 1870.
[3] *Nature*, 97, p. 5, 1916.